5547

Sukhoi Su-27

Walk Around No. 47

Hans-Heiri Stapfer

Don Greer 2007

Squadron Signal Publications

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Cover paintings and color profiles by Don Greer
Line art by Dave Gebhardt and Matheu Spraggins

One of the most beautiful children of the Cold War, the Sukhoi Su-27 (NATO reporting name "Flanker") was the Soviet answer to the American F-15 Eagle. The first prototype, the T-10S, made its maiden flight on 20 April 1981, and the first production aircraft were delivered in summer 1982. After a number of factory and state acceptance trials, the first 20 Su-27 Flanker-Bs were delivered on 22 June 1985 to the Istrebitel'nyi Aviapolk (IAP/Fighter Aviation Regiments) of the frontal fighter units of the Voenno-Vozdushnye Sily (VVS/Soviet Air Force) and the Protivo-Vozdushnaya Oborona (PVO/National Air Defense Forces). All single-seat Su-27 Flanker-Bs, about 500, were built at State Aircraft Factory 126 "Yuri Gagarin" at Komsomolsk-on-Amur.

The Flanker-B was armed with a GSh-301 30 mm cannon and could carry six R-27 (AA-10 "Alamo") and four R-73 (AA-11 "Archer") air-to-air missiles.

The first Su-27UB Flanker-C trainer prototype made its maiden flight on 7 March 1985. The first production Su-27UB flew in September 1986. The Su-27UB trainer has a raised rear instructor's cockpit for better visibility and the same weapons stations and fuel capacity as the single-seat Su-27 Flanker-B. All production Su-27UBs were built at State Aircraft Factory 39 at Irkutsk. The company became the Irkutsk Aircraft Production Organization (IAPO) after the collapse of the Soviet Union.

The Su-27K (Su-33) is a version of the Flanker made to launch from aircraft carriers. The "K" stands for Korabel'ny (shipboard). The first prototype, T-10 K-1, made its maiden flight on 17 August 1987 with Viktor Pugachev at the controls. Pugachev also performed the first landing on a Soviet aircraft carrier. The second prototype, T-10 K-2, touched down on the flight deck of the *Tbilisi* on 1 November 1989. The first serial production Su-27K left the State Aircraft Factory 126 "Yuri Gagarin" in 1992. By then, the Su-27K had been redesignated the Su-33. Through 1994, 24 Su-33s were built. They were all deployed to the Northern Fleet and were assigned to the *Soviet Union Fleet Admiral Kuznetsov*, as the *Tbilisi* had been rechristened after the breakup of the Soviet Union. The first long-range cruise of the *Kuznetsov* started on 23 December 1995 and ended on 25 March 1996. Most of the cruise took place in the Mediterranean and was shadowed by ships of the Sixth Fleet of the U.S. Navy.

Acknowledgements and photo credits

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All photos were taken by the author, unless otherwise noted.

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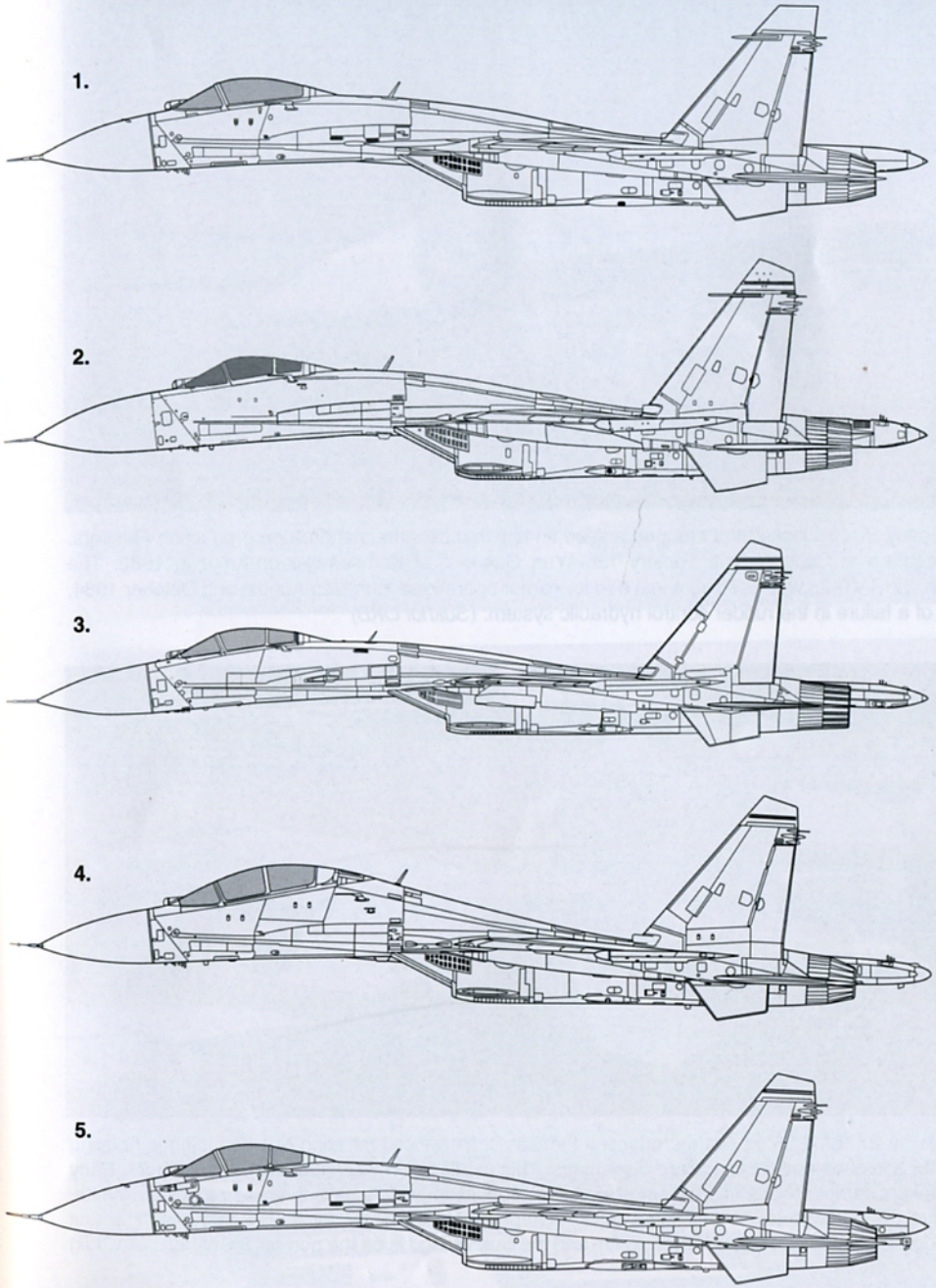
Front cover:
The Sukhoi OKB demonstration Su-27 "Blue 388" toured Europe, North America, and Asia in the 1990s.

Title page:
"Blue 388" flies over Alaska en route to Oklahoma City for the Aerospace America air show in 1990. (*USAF*)

Back cover:
The early Su-27 "Blue 24" is part of the 582nd Fighter Aviation Regiment.

Flanker evolution



1. Su-27 Flanker-B (very early)
Very-early-production Su-27 Flanker-Bs lacked the cropped angled fin tips. These Flanker-Bs did not have a bulge in the inner surface of the nose wheel door and carried the early mudguard on the KN-27 nose wheel. All very-early-production Su-27s had the radome, the fin leading-edge HF aerial, and the fin tip VHF aerial fairing painted Radome Green (Federal Standard 34227). The very early Su-27s had a plain rim with a cross applied over the circular aperture on the KT-156 D main wheel.

2. Su-27 Flanker-B (early)
The early-production Su-27s had cropped, angled fin tips. The early Su-27 Flanker-Bs were equipped with anti-flutter weights on the tail fins. The early Su-27 had a small tail sting with 24 chaff/flares mounted in the APP-50 chaff/flare dispenser system. These early Flanker-Bs had a small, shallow bulge in the inner surface of the nose wheel door and were equipped with the early mudguard on the KN-27 nose wheel. The early-production Su-27 Flanker-Bs were equipped with a vaulted rim on the KT-156 D main wheel. The circular aperture in the center of the rim was enlarged, but the cross applied over the circular aperture was retained. A small number of early Su-27s had the radome painted White instead of Radome Green.

3. Su-27 Flanker-B (late)
Late-production Su-27 Flanker-Bs received a revised tail sting with box fairings housing electronic countermeasure (ECM) antennas and a total of 54 chaff/flare dispensers held by an APP-50 chaff/flare dispenser system. This modification was introduced in 1987. The anti-flutter weights were omitted from the tail fin on late-production Su-27s. Late-production Su-27s had a modified mudguard on the KN-27 nose wheel and a large, deep bulge in the inner surface of the nose wheel door. They also had several small circular apertures placed in the center of the rim of the KT-156 D main wheel. Late-production Su-27s had the radome, the fin leading-edge HF aerial, and the fin tip VHF aerial fairing painted White instead of Radome Green. Very-late-production Su-27 Flanker-Bs were equipped with a blade-shaped UHF aerial mounted under the tail sting, a feature adopted from the Su-27UB Flanker-C. Several Su-27s were retrofitted with an additional ECM antenna on the wing root extension.

4. Su-27UB Flanker-C
The Su-27UB Flanker-C had a second, raised cockpit compartment. From the beginning of the production cycle, the Su-27UB received the late mudguard on the KN-27 nose wheel and a large, deep bulge in the inner nose wheel door. All production Su-27UBs received an additional ECM antenna on the leading-edge root extension. A rectangular antenna was added to the leading-edge flap of the Su-27UB's wing. The air brake on the dorsal spine was enlarged. All production Su-27UB Flanker-Cs had a blade-shaped UHF aerial mounted under the tail sting and a more pointed parachute door on the tail sting than the single-seat Su-27 Flanker-Bs.

5. Su-27K (Su-33)
The Su-27K (Su-33) aircraft carrier-based fighter had foldable wings and horizontal stabilizers and an additional wing pylon. An arrestor hook was mounted under the tail sting. The Su-33 was the first Flanker variant to be equipped with canards. The Su-33 was equipped with a retractable in-flight refueling probe on the port nose. The OEPS-27K electro-optical sighting system was offset to the starboard canopy frame. The tail sting was shortened, and the parachute compartment and the APP-50 chaff/flare dispenser system were omitted. Instead, the SPO-15 (L-006) Bereza (Birch) radar homing and warning system was mounted inside the tail sting. The fairings for the SPO-15 (L-006) Bereza radar homing and warning system antennas on the lower engine nacelles on Su-27s and Su-27UBs were omitted from the Su-33. The Su-33 was equipped with a reinforced undercarriage and two nose wheels instead of one as on land-based Flankers.

The early-production Su-27 Flanker-Bs were equipped with anti-flutter weights on the tail fins. The very early Su-27s lacked the cropped angled fin tips that became standard on production Flankers. T-10-25 "Blue 25" was one of the first series production Su-27 Flanker-Bs. This plane was manufactured at State Aircraft Factory 126 "Yuri Gagarin" at Komsomolsk-on-Amur in 1982. The T-10-25 received a retractable arrestor hook and a reinforced undercarriage in 1984. With its modifications, the T-10-25 was used as a test bed for carrier operations. Between August and October 1984, the T-10-25 performed nine arresting-gear landings. The plane was lost on 11 November 1984 because of a failure in the rudder control hydraulic system. (*Sukhoi OKB*)

This Ukrainian Su-27 is an early-production Flanker-B. The early Su-27 has a tail sting with small lateral strakes and no box fairings. The early models of the Flanker carried 24 chaff/flare dispensers. Early Su-27s had a mudguard with three apertures on each side on the KN-27 nose wheel as well as a Green radome. The splinter camouflage is typical of Flankers belonging to the Ukrainian Air Force. (*Marcus Fülber*)

This Su-27 "Blue 36" is a late-production Flanker-B. Its revised tail sting has box fairings housing ECM antennas and 54 chaff/flare dispensers. This modification was introduced in mid-1987. Early Flankers carried 24 chaff/flare dispensers. Late-production Su-27s have the radome painted White. "Blue 36" belongs to the 941 Istrebitel'nyi Aviapolk (941st Fighter Aviation Regiment). The unit badge is painted on the starboard tail fin, and the Sukhoi logo is on the port tail fin. (*Andrej Zinchuk*)

(*Top left*) Two Su-27s and an Su-27UB (background) belonging to the 760 IISAP (760th Instructor Research Composite Aviation Regiment) based at Lipetsk fly in formation. The two single-seat Flankers are equipped with L-005 Sorbtsiya-S (Absorption-S) jamming pods on the wing tips. These Flanker-Bs were also equipped with two White ECM antennas on the wing root extensions. Standard production Su-27 fighters carried only a single ECM antenna. (*G.F. Petrov*)

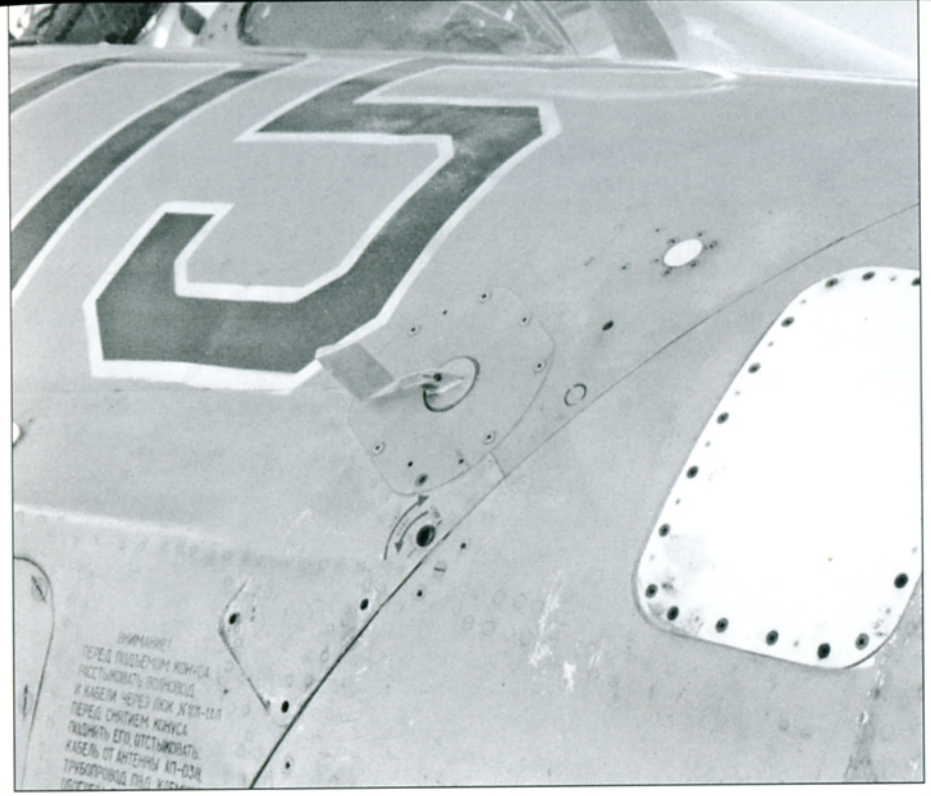
(*Top right*) The Su-27 "Blue 38" is being armed with two operational R-27 ER (AA-10 "Alamo") missiles. Dummy missiles have Black stripes, while operational missiles are painted White overall. This Flanker-B was retrofitted with two White ECM antennas on the wing root extension. Initially, this Sukhoi fighter was delivered with a single ECM antenna. (*Andrej Zinchuk*)

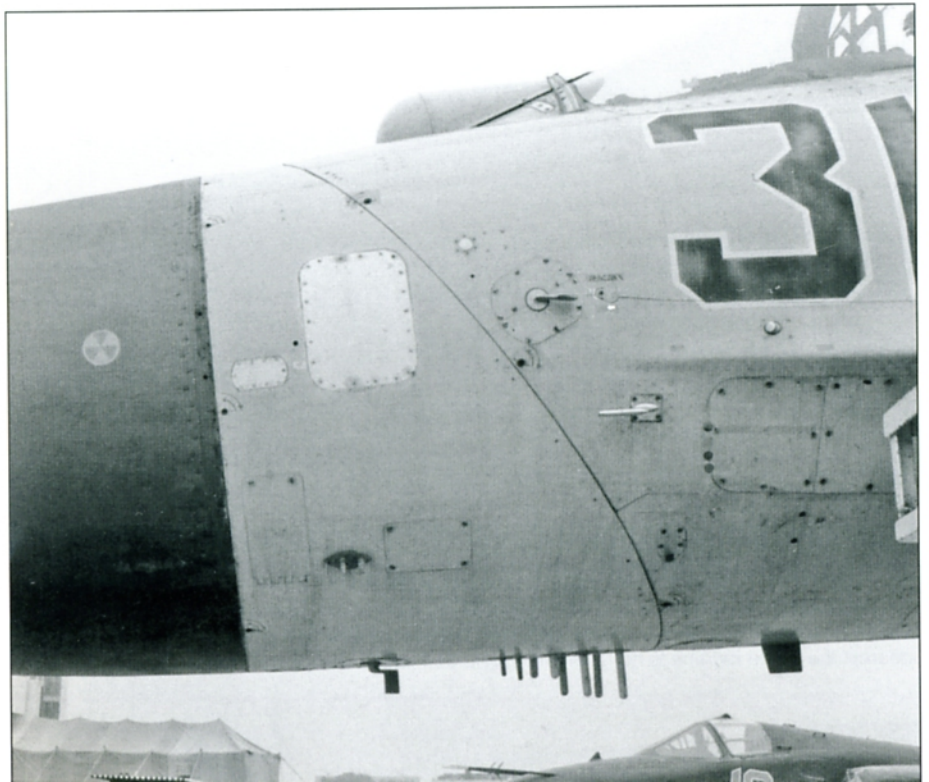
(*Left*) A Swiss-built Pilatus PC-9, HB-HPE, flies in formation with Su-27 "Blue 388" and Su-27UB "Blue 389" during Asian Aerospace held in 1990 in Singapore. The Sukhoi logo is not standard for production Flankers but was applied to "Blue 388" and "Blue 389" on the port and starboard tail fins. Production Su-27s and Su-27UBs carried the Sukhoi logo only on the port tail fin. (*Pilatus Aircraft Ltd.*)

These late-production Su-27 Flanker-Bs belonging to the 941 Istrebitel'nyi Aviapolk (941st Fighter Aviation Regiment) are stored for the summer at Kilp-Yavr airfield on the Kola Peninsula. They belong to the 10th Air Defense Army of the PVO. Late-production Su-27s have a White radome and a White tail tip. The Su-27 "Blue 39" is equipped with an L-005 Sorbtsiya-S (Absorption-S) jamming pod on each wing tip. The location of the tactical number on the tail fin denotes that it is an Su-27 Flanker-B. Flanker-Bs have the tactical number applied below the national marking, while the Su-27UB Flanker-Cs have the two-digit tactical number painted above the Red star. (*Andrej Zinchuk*)

This armed early-production Su-27 "Blue 41" belongs to the 582 IAP (582 Istrebitel'nyi Aviapolk/582nd Fighter Aviation Regiment). The pitot tube on the radome, the angle of attack vane, and the pitot probes are covered, a standard procedure when the Flanker is on the ground. The OLS-27 infrared search and track sensor in front of the windshield is also covered. (*Wojciech Luczak*)

"Red 25" is a standard-production Su-27. Its radome is painted White, while the fin-tip VHF aerial fairings are painted Radome Green, a feature not often seen on Flanker-Bs. R-73 (AA-11 "Archer") air-to-air missiles are mounted on the wing tips and the outer pylons. The inboard APU-470 pylons and the fuselage-mounted AKU-470 pylon carry dummy R-27 R (AA-10 "Alamo") air-to-air missiles. (*Sukhoi OKB*)

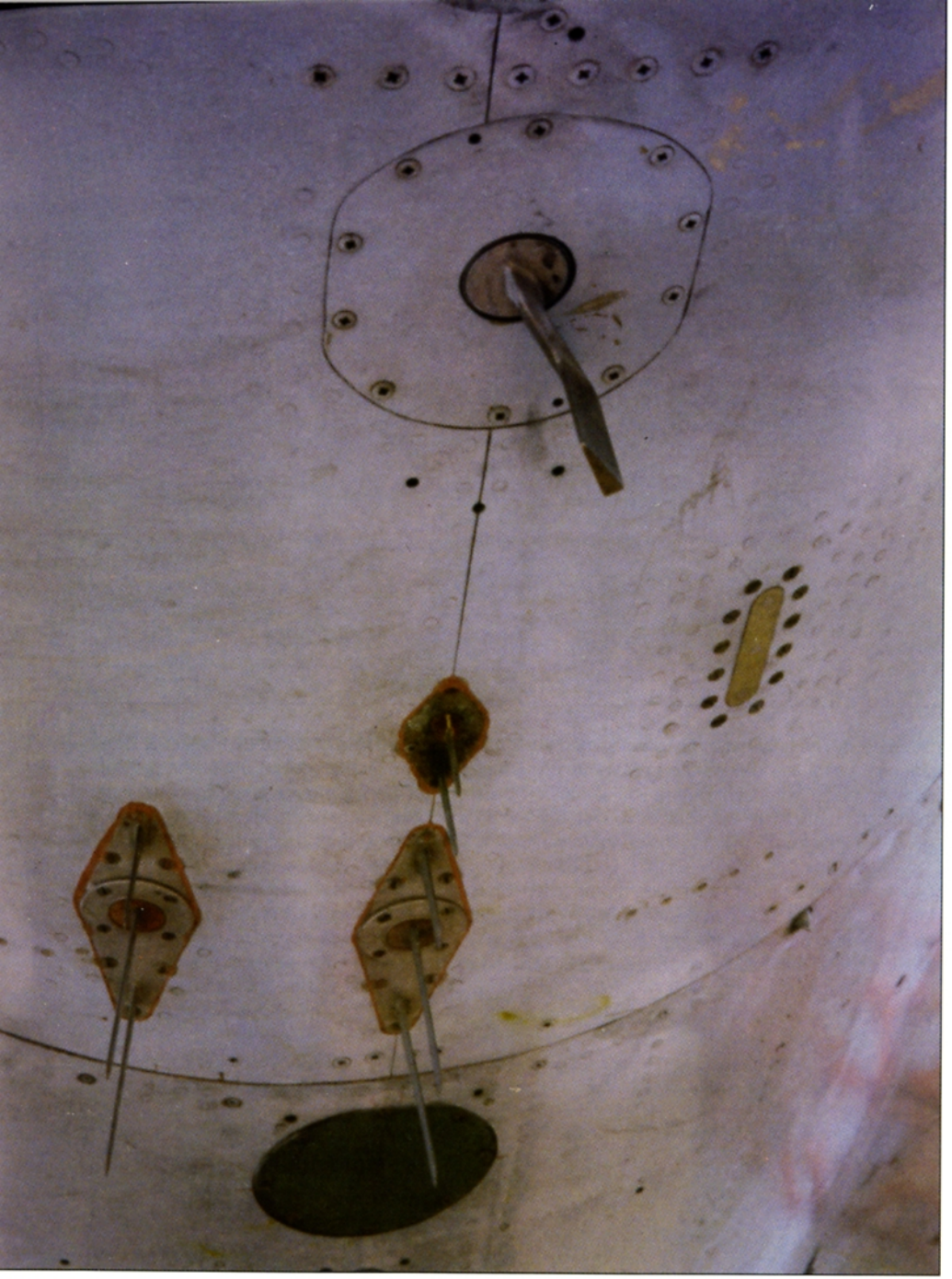




(*Above left*) The angle-of-attack vane is mounted on the starboard side of an Su-27 Flanker-B. The diagonal panel line divides the radome from the fuselage. The Red stenciling under the tactical number reads: "Attention! Before you lift the cone, disconnect the wave guide and cables through the hatch number 101-1AL. Before you remove the cone, lift it up. Disconnect the cable from aerial AP-038, pipes from PVD, and the connector of the PVD heating." (*Pavel Türk*)

(*Above right*) "Blue 34," a standard-production Su-27 Flanker-B, has three Red stars painted forward of the tactical number on the nose, designating live missiles fired at drones. "Blue 34" belongs to the 641st Guards Fighter Aviation Regiment, 10th Air Defense Army, PVO, and is based at Rogachovo airbase on Novaya Zemlya, an island in the Arctic archipelago that separates the Barents Sea from the Kara Sea. "Blue 34" has a White polar bear painted on the starboard tail fin, designating its service in the Arctic. (*Andrej Zinchuk*)

(*Left*) The nose of the Su-27 Flanker-B "Blue 31" has an angle-of-attack vane behind a dielectric panel. Angle-of-attack vanes are located on both sides of the nose. The small pitot tube under the first digit of the tactical number was omitted from subsequent standard production Su-27s. "Blue 31" was the 17th production Flanker-B built at State Aircraft Factory 126 "Yuri Gagarin" at Komsomolsk-on-Amur. It is equipped with an RLPK-27 radar sighting system, and its radome is made of fiberglass.



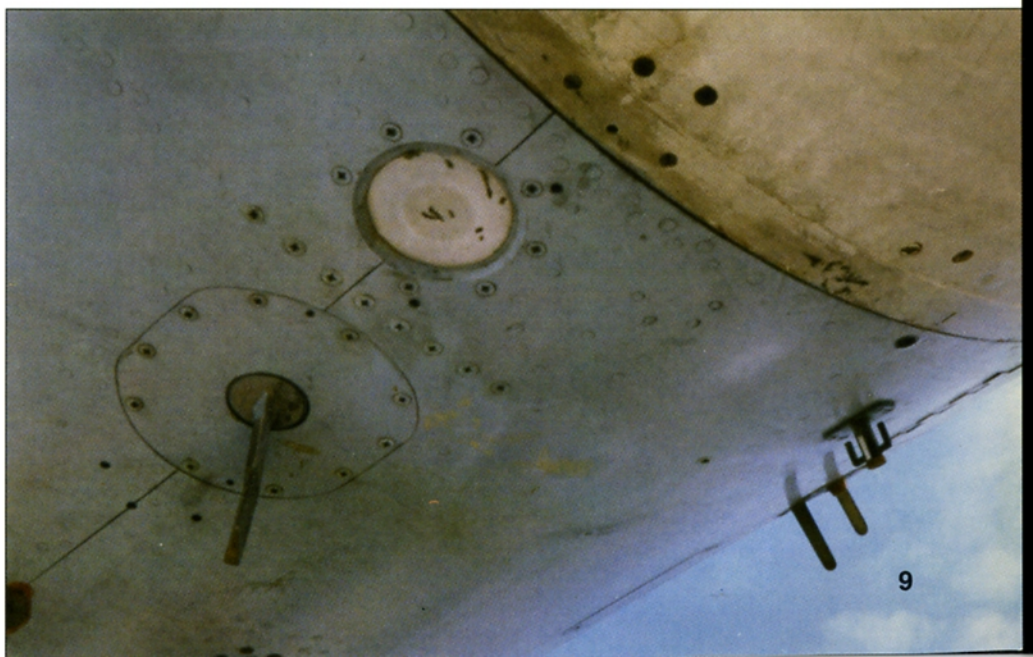
The lower nose section of an Su-27 Flanker-B is equipped with two three-pole identification friend or foe (IFF) antennas. One of the antennas is offset to the starboard side. An angle-of-attack vane is mounted in front of the IFF antennas. (*Pavel Türk*)

An angle-of-attack vane and two three-pole IFF antennas are visible on the lower nose of an Su-27 Flanker-B. The two two-pole antennas are also connected to the IFF system. The tube nearest the White radome is not standard for Su-27 Flanker-Bs. (*Pavel Türk*)

(*Left*) The access panel on the lower nose of the Su-27 Flanker-B "Blue 31" opens to starboard and provides access to the SUV-27 weapons targeting complex. In the background is the main assembling hall of the Gosudarstvenny Aviatsionny Zavod 30 "Znamya Truda" (State Aircraft Factory 30 "Banner of Labor").

(*Above*) The two three-pole and both two-pole antennas on the lower nose surface are connected to the IFF system of the Su-27 Flanker-B. These IFF antennas are connected with the SUV-27 weapons targeting complex. The rectangular access hatch is for the R-800 FM and R-864 short-wave radio equipment.

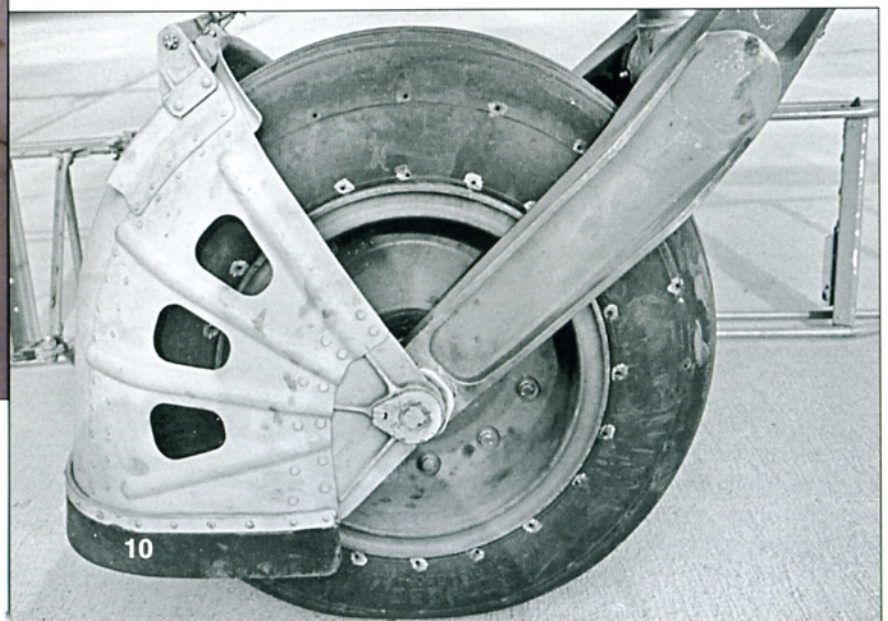
(*Below*) The angle-of-attack vane under the nose of the Su-27 Flanker-B is one of three. A vane is mounted on each side of the nose as well. The three angle-of-attack vanes feed the SAU-10 autopilot. (*Pavel Türk*)

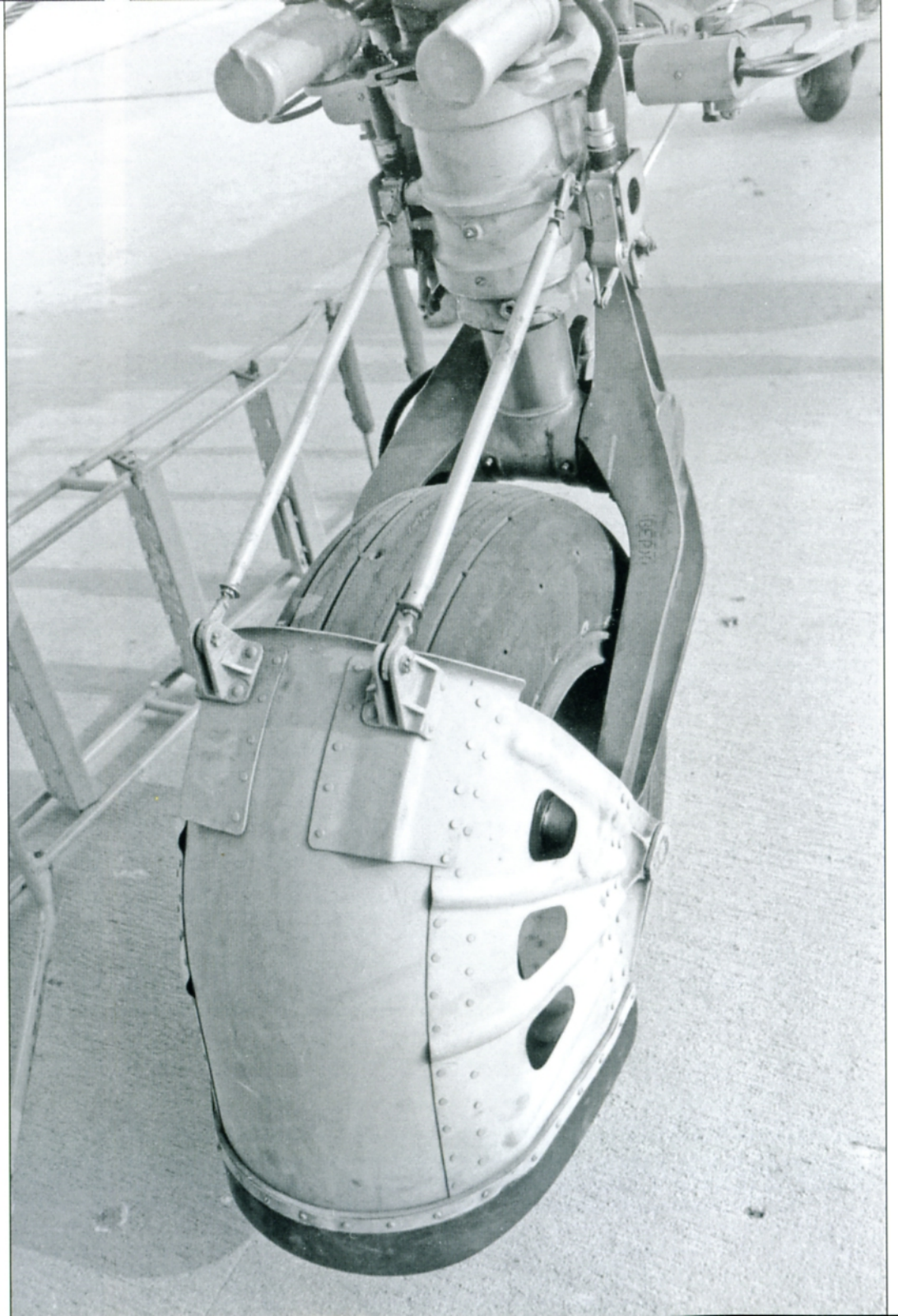


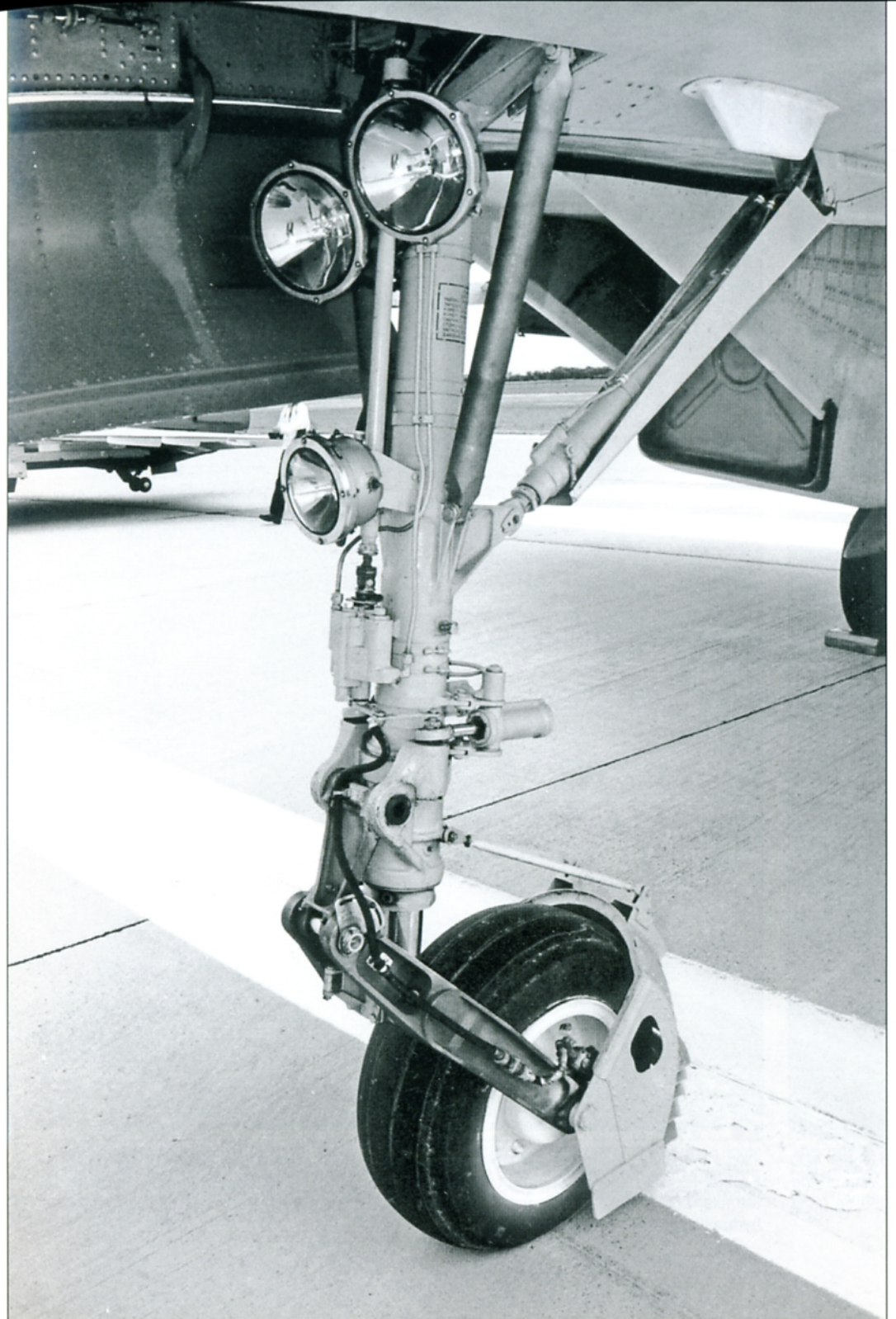
(*Above*) This early mudguard belongs to the Su-27 "Blue 31." The rim is painted Radome Green, while the mudguard and part of the nose wheel strut are painted Light Blue Gray. The hydraulic tube is only attached on the port side.

(*Right*) The early type of mudguard on the nose wheel of an Su-27 Flanker-B has three triangular apertures on each side of the covering. All Flanker-Bs equipped with the early type of mudguard have a nose wheel door that is either flush inside or has a small bulge.

(*Below*) The starboard side of this KN-27 nose wheel has three triangular apertures and the four stabilization ribs, typical for the mudguards of early-production Su-27 Flanker-Bs.



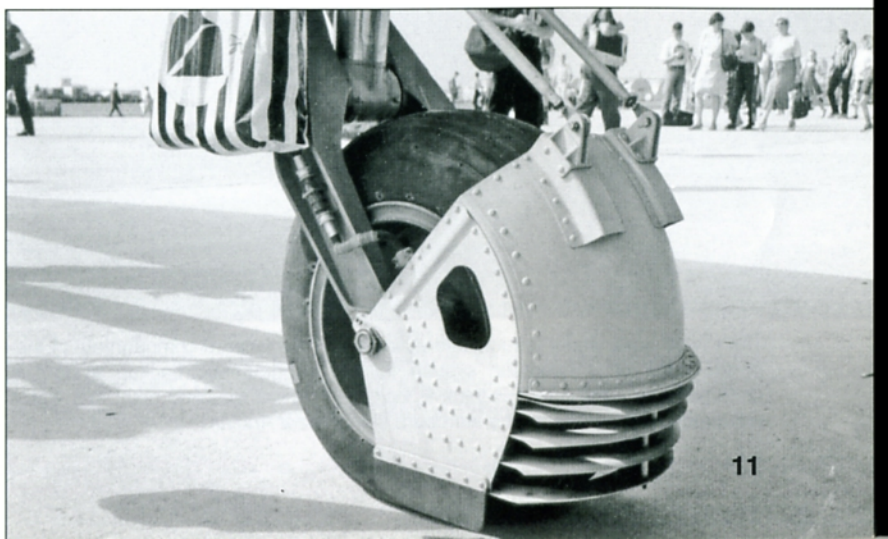


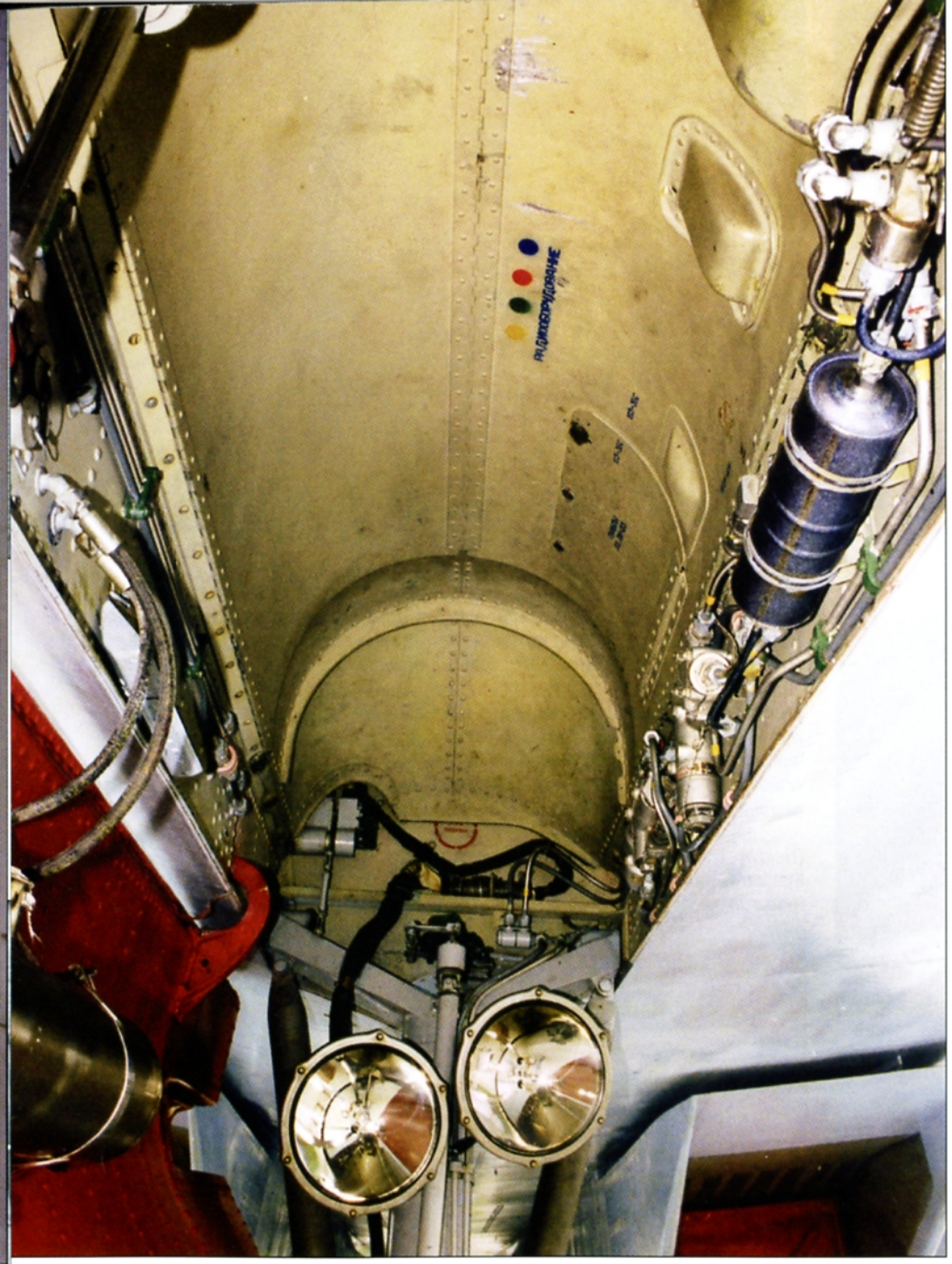


(*Left*) This nose wheel is equipped with a late-type mudguard with a single rectangular aperture. The two landing lights were mounted in a staggered position on the upper part of the strut. A taxi light is below the landing lights. (*Jozef And'al*)

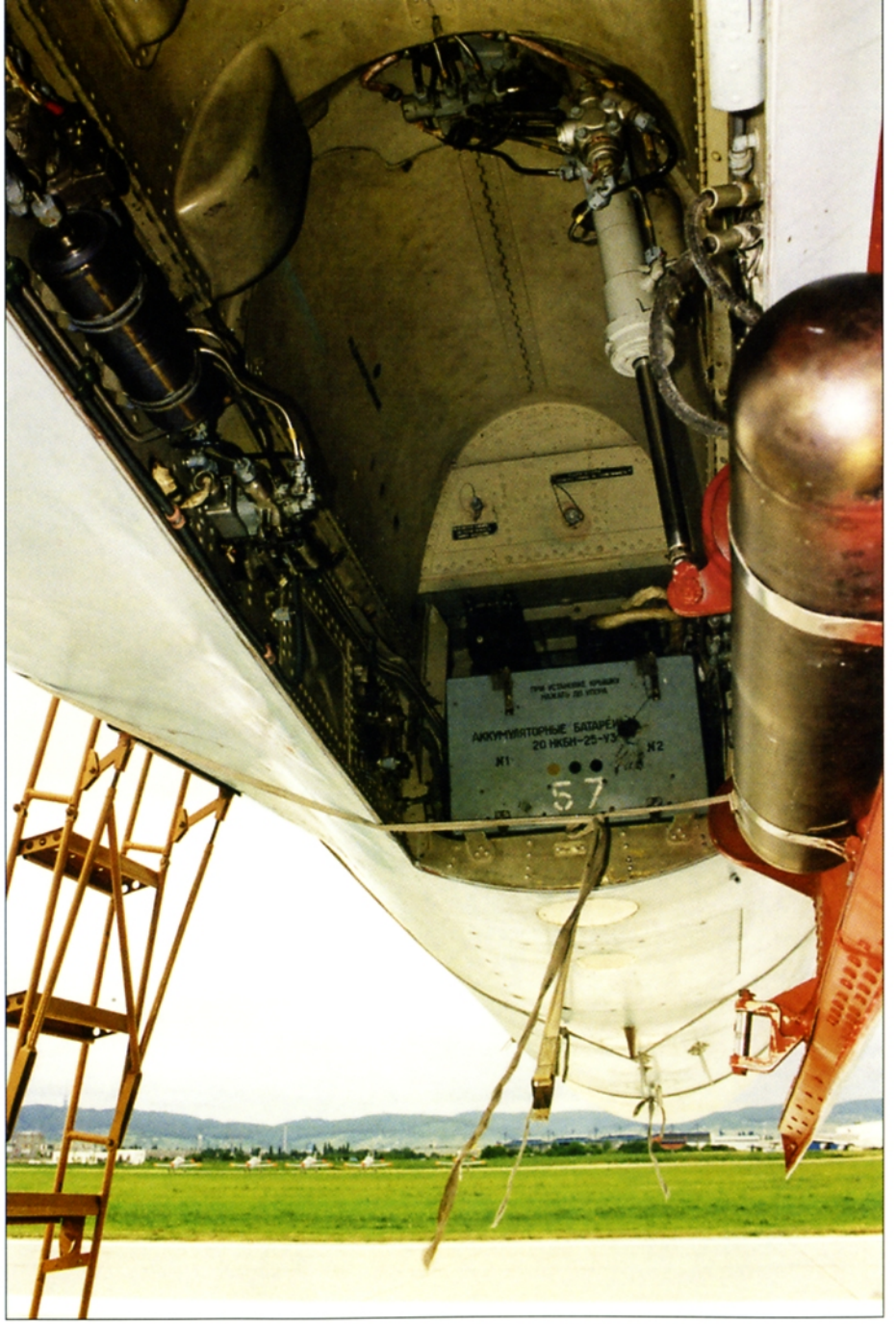
(*Above*) "Blue 31" and other very-early-production Flanker-Bs have the inner nose wheel surfaces painted Gray and lack the small bulge that became a typical feature on subsequent early-production Su-27s. Nearly all Su-27s have the nose wheel door painted Red. "Blue 31's" glycol tank is missing from the inner nose wheel door; it was removed before the fighter was put on exhibit in Moscow.

(*Below*) The late-type mudguard on the nose wheel of a single-seat Su-27 Flanker-B has a single rectangular aperture in the upper portion of the mudguard. Slots were introduced on the rear of the mudguard. The early-production mudguards lacked these slots. (*Pavel Türk*)



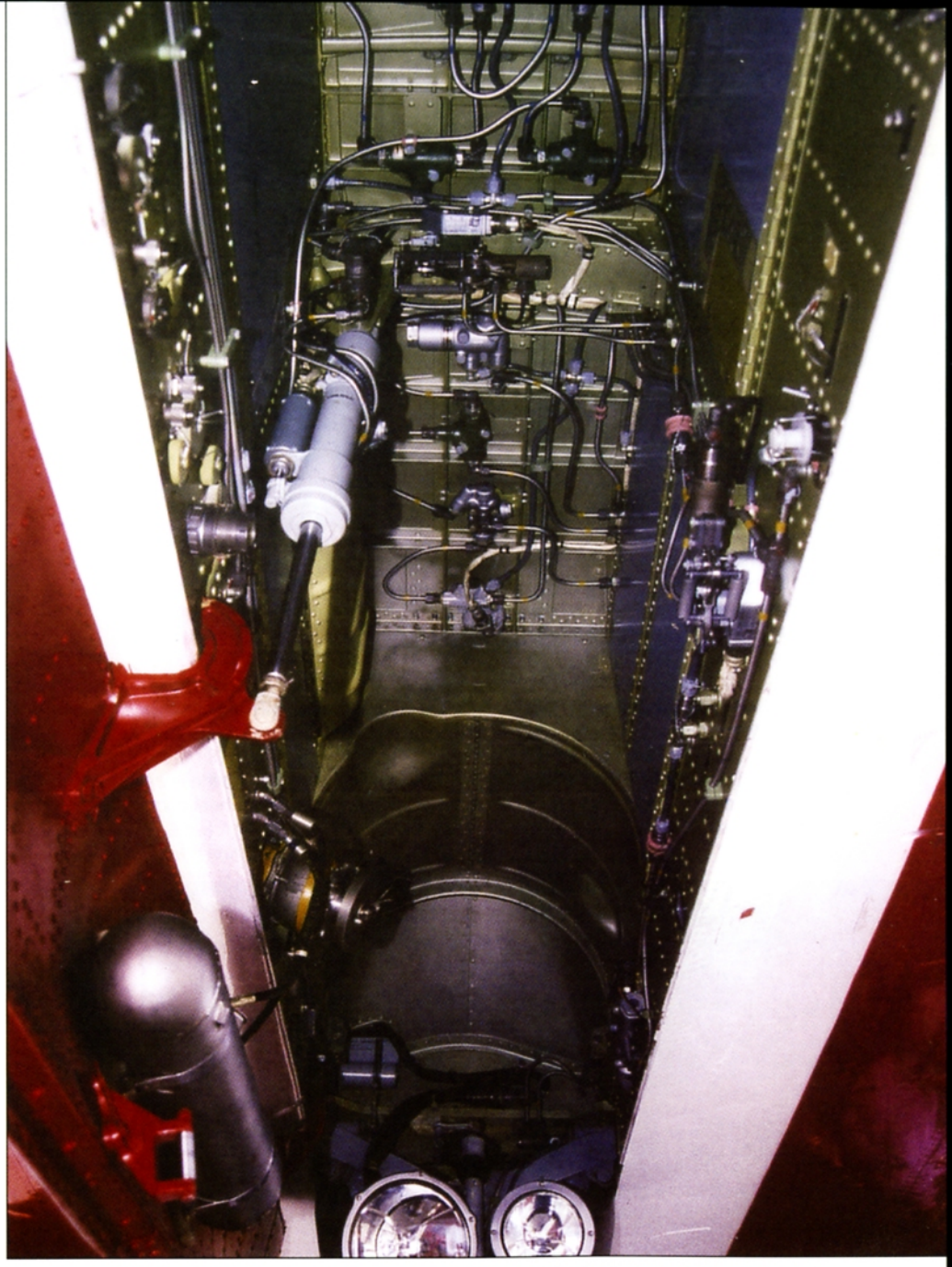


The KN-27 nose wheel retracts hydraulically into the forward compartment of the main wheel well. In the case of a hydraulic system failure, a pneumatic backup system could retract the undercarriage. This Su-27 Flanker-B lacks the central refueling point that was included on most late-production Su-27s on the starboard side. (*Jozef And'al*)

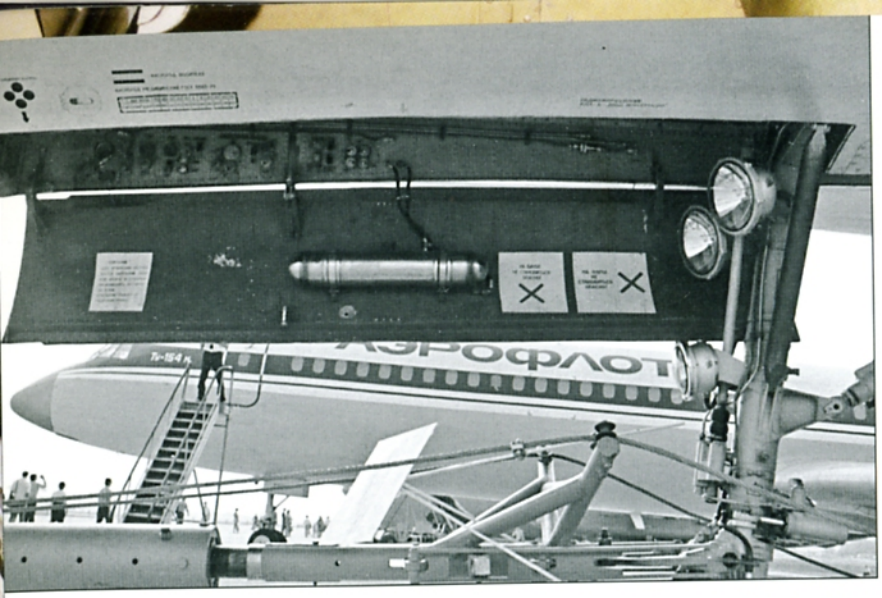


Two 20NKBN-25 batteries are stored in the front of the nose wheel well of a Ukrainian Su-27 Flanker-B. The batteries operate two emergency buses. The starboard hydraulic cylinder opens, retracts, and releases the single nose wheel door. The Su-27 Flanker-B has two independent hydraulic systems. (*Jozef And'al*)

The central refueling point is located above the glycol tank in the nose wheel well of a late-production Su-27 Flanker-B. It was introduced in late-production Su-27s, making refueling the plane much easier. On earlier models, the ground crew had to climb to the dorsal spine to access refuel points. (*Marcus Fülber*)



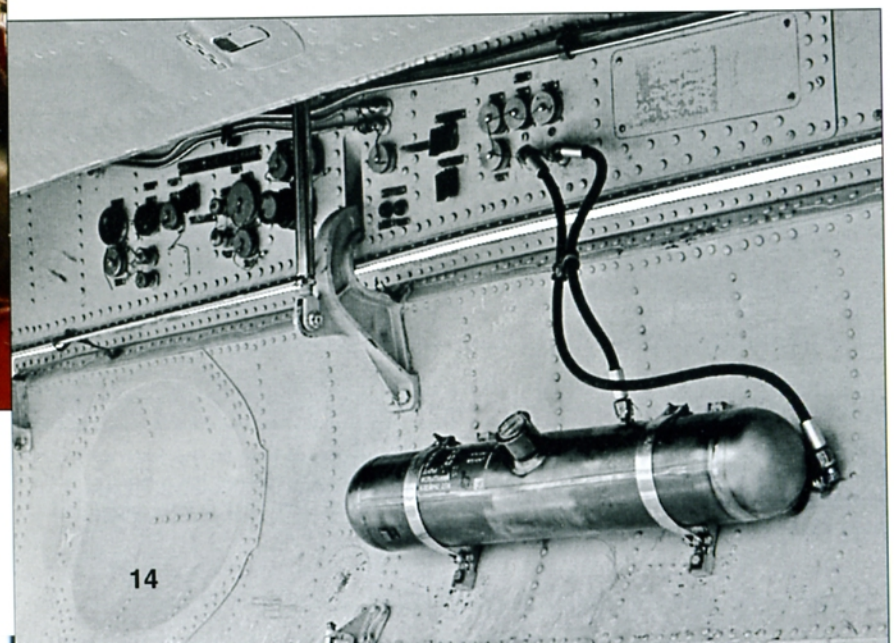
The refueling point in the nose wheel well of late-production Su-27s is one of four on the later Flanker-Bs. Three others are on the upper rear of the fuselage. Early Su-27s did not have the refueling point in the wheel well. The Su-27 has four fuel tanks, which can hold a total of 3,163 U.S. gallons (11,975 L) of T-1 or TS-1 kerosene. (*Marcus Fülber*)

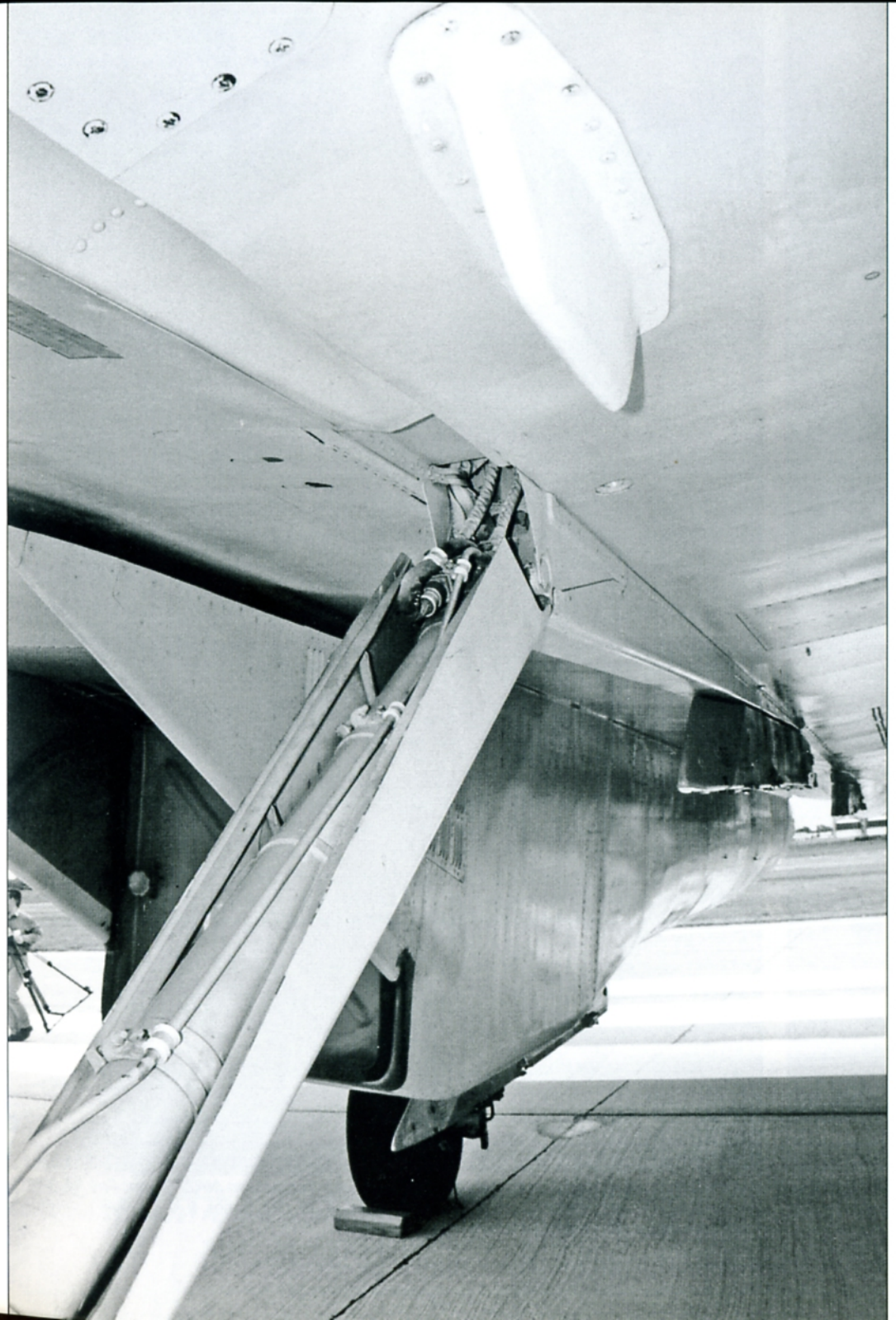


(*Above*) The nose wheel door of early-production Su-27s has a small bulge in the front. All Su-27 Flanker-Bs equipped with the early type of mudguard on the nose wheel either lack the bulge or have a small bulge on the inside nose wheel surface. The metal tank houses glycol for deicing the windscreen.

(*Right*) Part of the nose wheel strut of Su-27 "Blue 31" is painted Light Blue Gray. The rest remains natural metal. The KN-27 nose wheel of the Su-27 is steerable and enables the aircraft to perform tight turns while taxiing.

(*Below*) All Su-27 Flanker-Bs equipped with the late type of mudguard on the nose wheel have a large bulge in the front of the inner surface of the nose wheel door. (*Sergej F. Sergejev*)

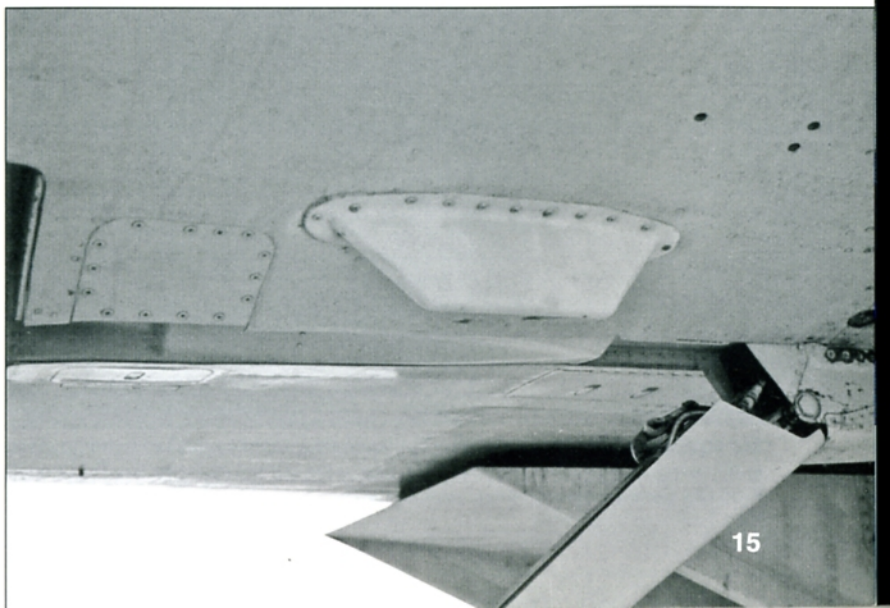




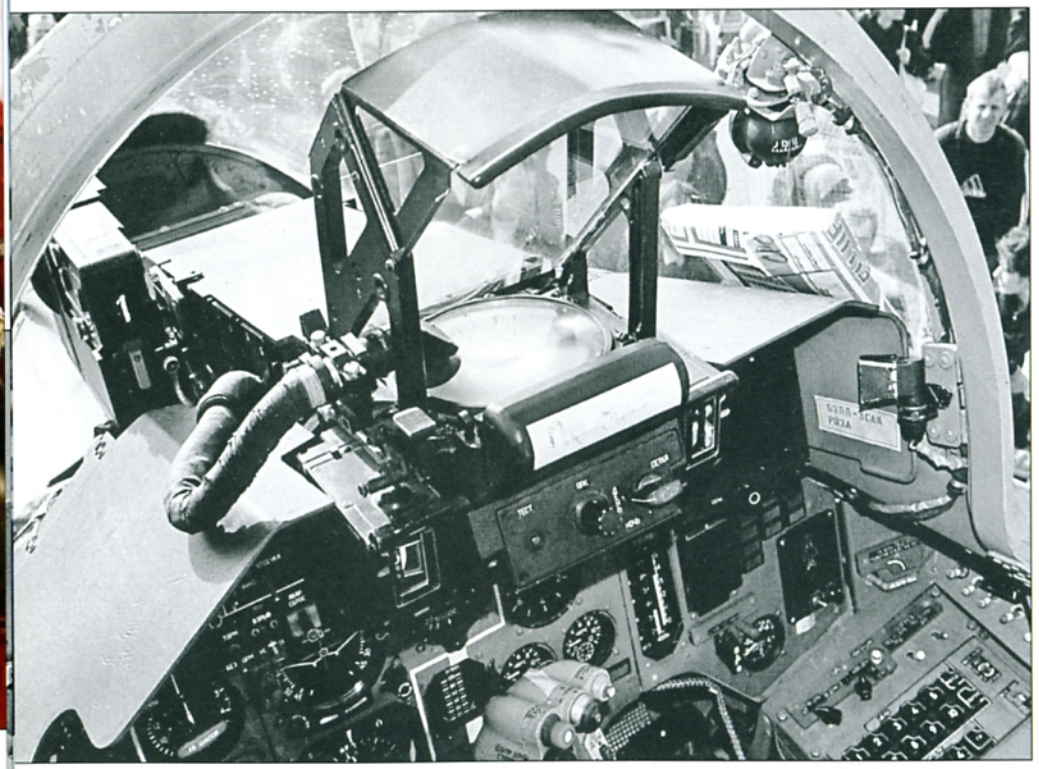
(*Left*) The hydraulic retraction jack of the KN-27 nose wheel has a rugged strut designed to allow the Su-27 Flanker-B to operate on unprepared fields. (*Jozef And'al*)

(*Above*) The Su-27 "Blue 06" carries a Guards emblem under its canopy. The style of the Guards emblem has not changed since World War II. Above the Guards emblem is a Red star, denoting a successful kill of a drone during an exercise. The tactical number has a Black outline, which is unusual for Su-27s. Most Flankers have the tactical number outlined in White. (*G.F. Petrov*)

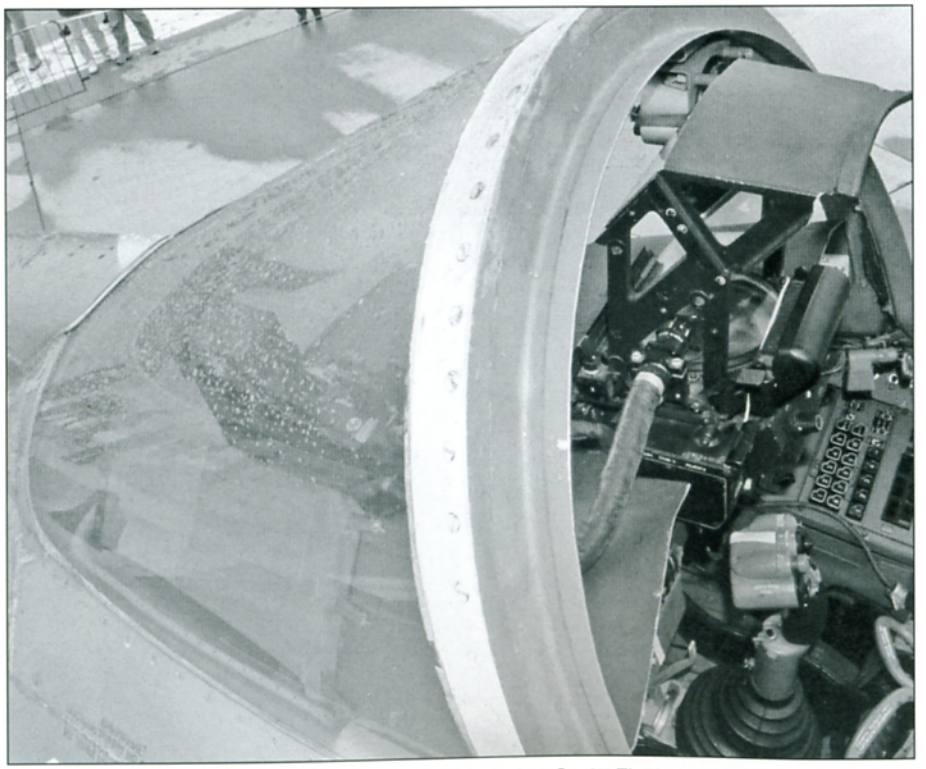
(*Below*) An antenna fairing is located on the port side of the nose gear extension. This antenna fairing is painted White on standard-production Su-27s but is painted Radome Green on some early-production Su-27s.



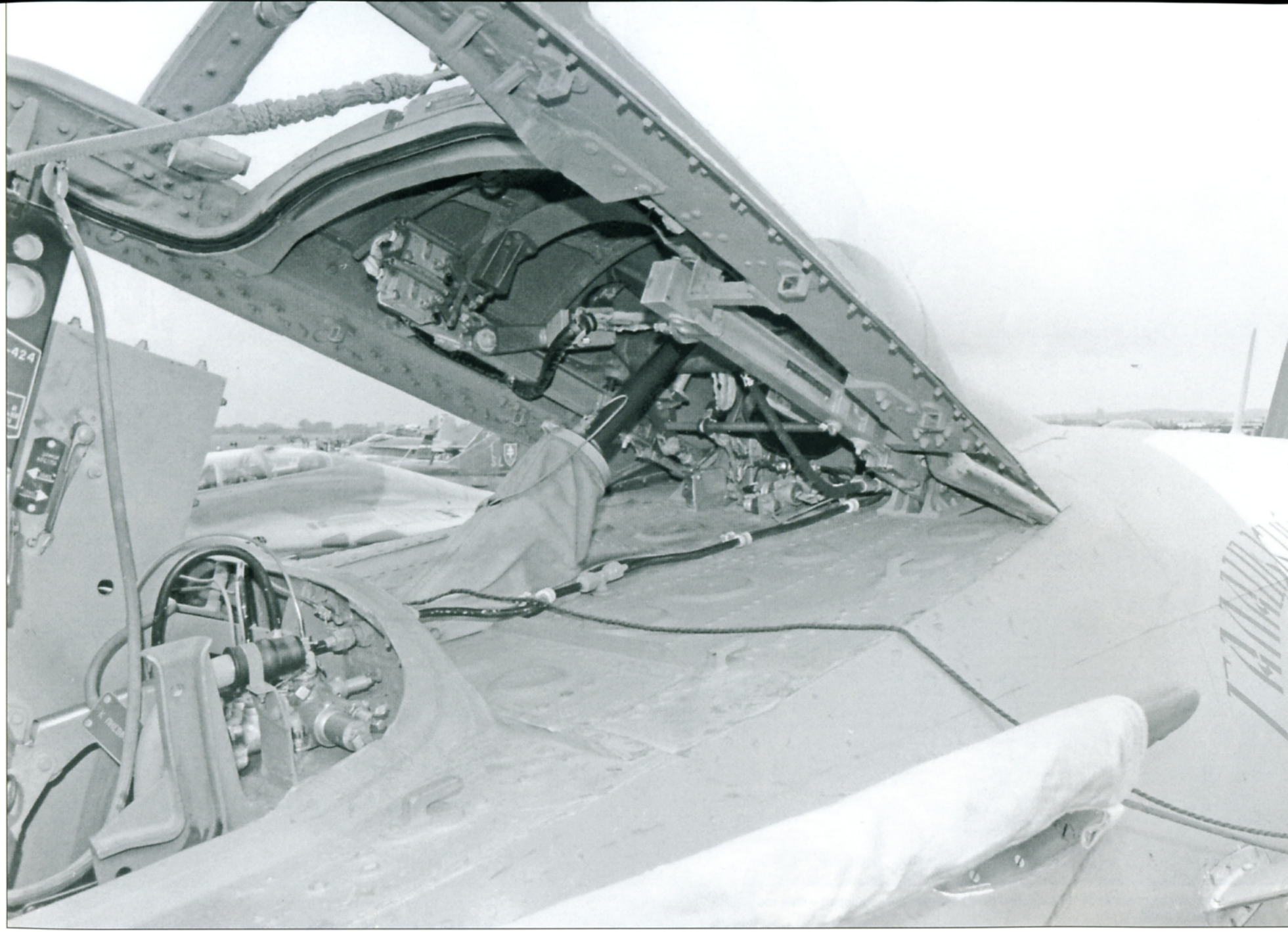
In front of the windshield of an early Su-27 Flanker-B is the centerline-mounted fairing for the OLS-27 IRST sensor, which belongs to the OEPS-27 electro-optical sight system. This Su-27 belongs to the Ukrainian Air Force. The silver frame of the windshield and the canopy is not standard. The majority of Su-27 Flanker-Bs have the frame camouflaged. Rails for the KM-36 DM Series 2 ejection seat can be seen in the rear of the cockpit. (*Sergej F. Sergejev*)



The head-up display is mounted on the covering above the instrument panel. The covering on the single-seat Su-27 Flanker-B is different from the covering in the rear seat of an Su-27UB Flanker-C. Below the Black HUD is the HUD control panel. (*Jozef And'al*)

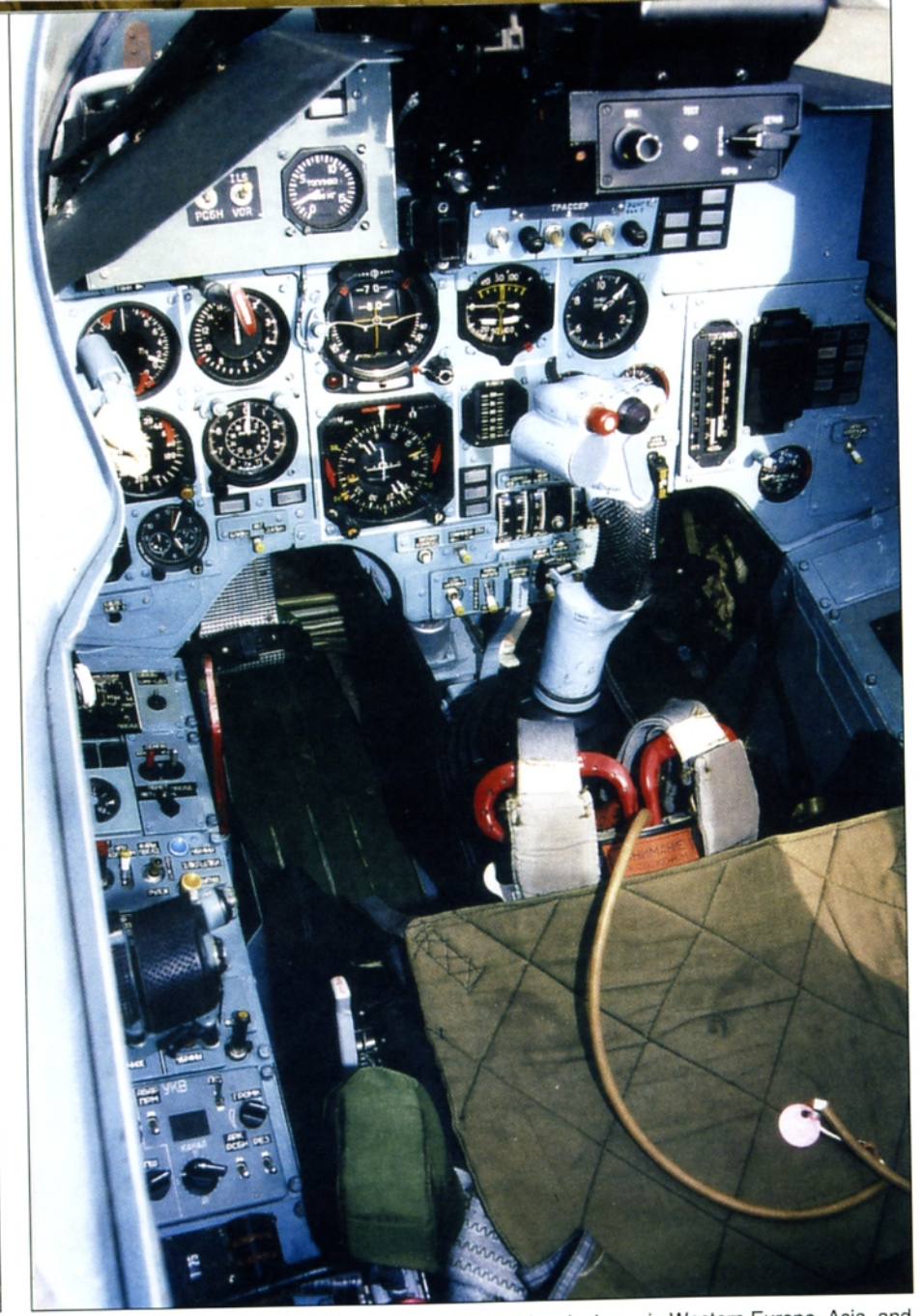


The open canopy offers a view of the head-up display of an Su-27 Flanker-B. The large cable feeds the HUD control panel and the helmet-mounted target-designator sensors. The target-designator sensors were located on the left of the HUD control panel. (*Jozef And'al*)

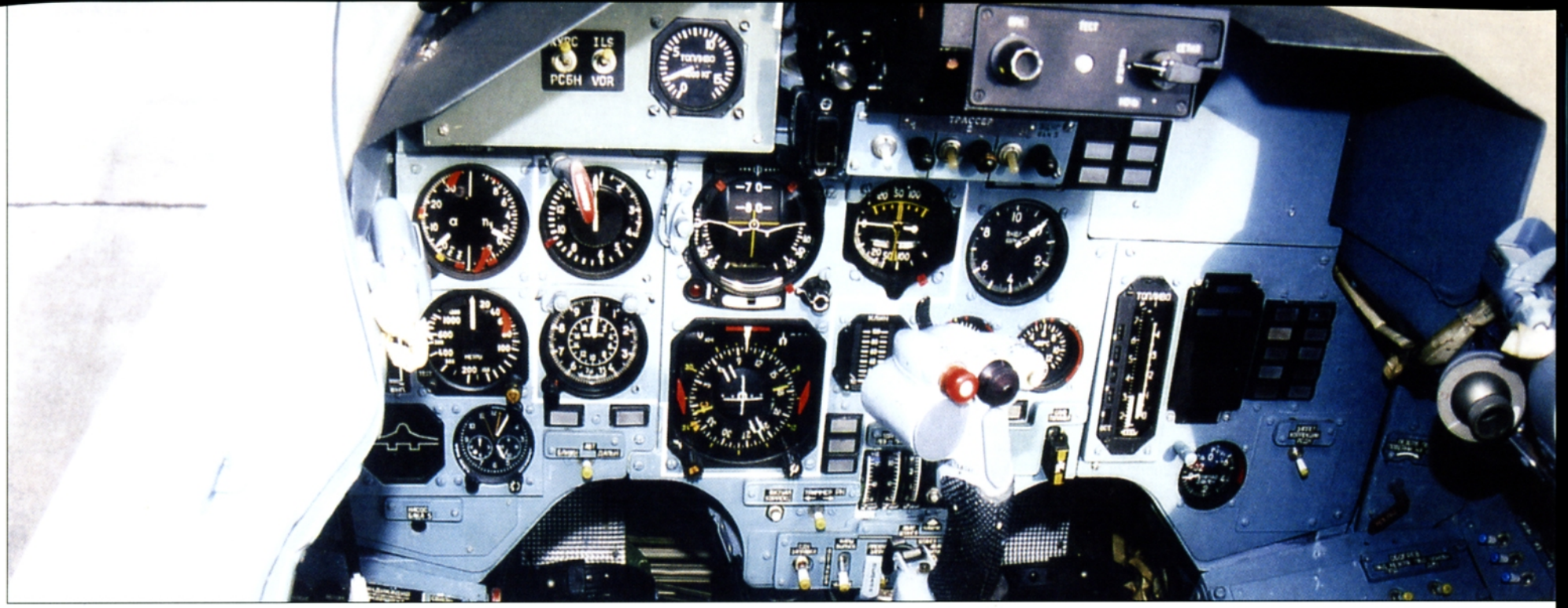


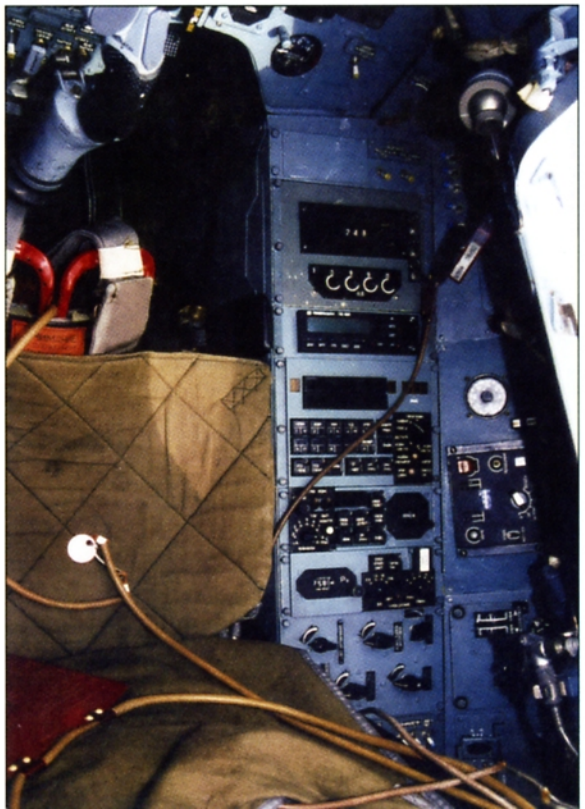
The KM-36 DM ejection seat is mounted to the slanted rear wall of the cockpit with the seat back inclined at 17 degrees. The canopy is pneumatically actuated and hinged aft. A pressurized vessel is located behind the KM-36 DM Series 2 ejection seat. Part of the canopy sealing is attached to the canopy frame. (*Jozef And'al*)

The cockpit of a standard-production Su-27 Flanker-B is equipped with a radar/IRST CRT display. *(Sukhoi OKB)*



The cockpit of this Su-27 Flanker-B has been modified for air shows in Western Europe, Asia, and North America. The upper left instrument panel has been modified, and the inscription is in English. Several buttons have been removed from the control stick, and the apertures have been faired over. The radar/IRST CRT display is also missing from the upper starboard side instrument panel. Instead, the panel has been faired over. (*Marcus Fülber*)



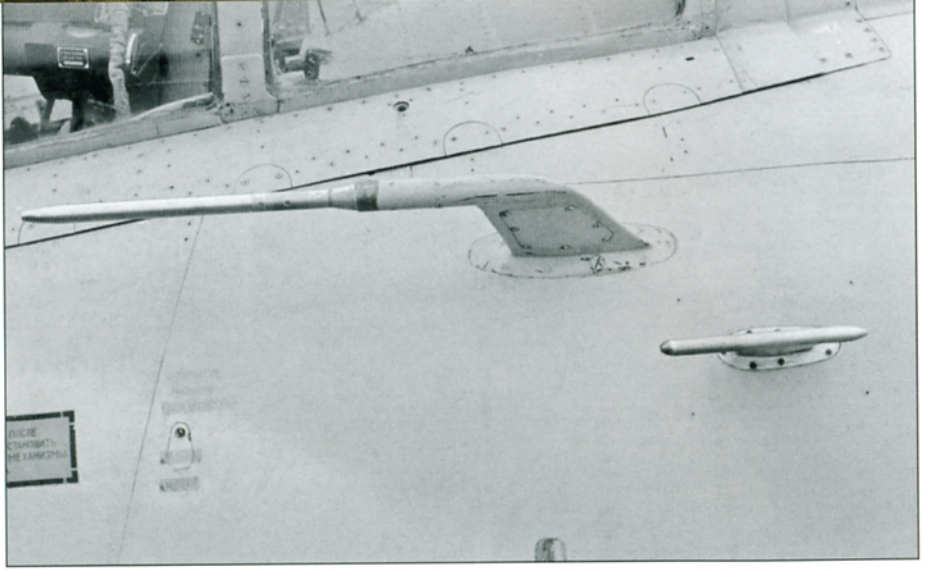


(*Above*) The instrument panel of a demonstration Su-27 Flanker-B. (*Marcus Fülber*)

(*Far left*) The port console and throttle of a demonstration Su-27 Flanker-B. (*Marcus Fülber*)

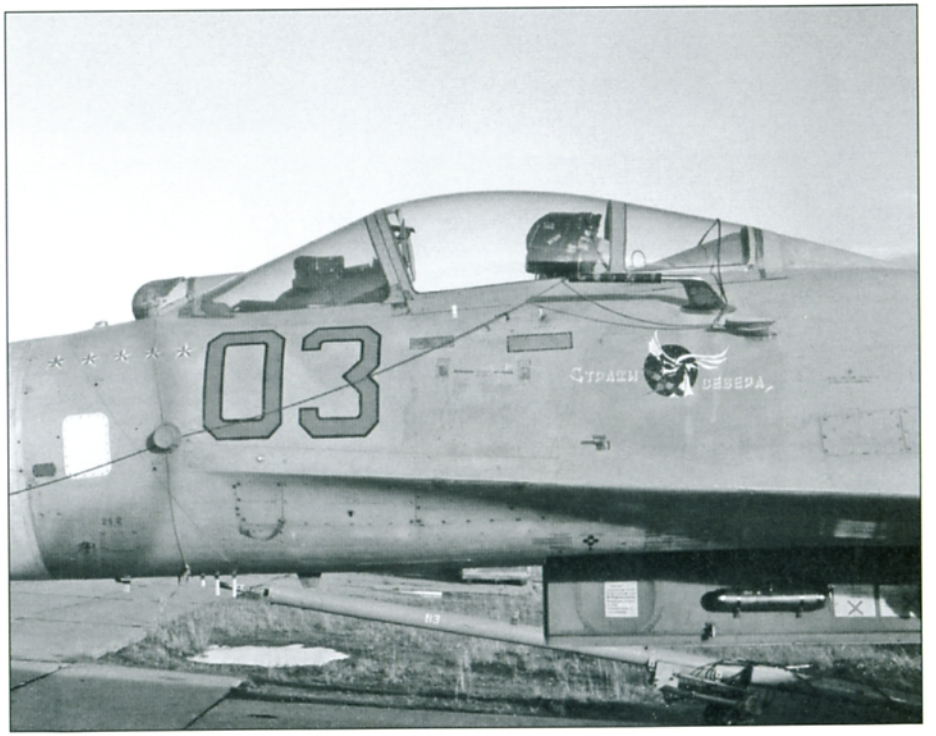
(*Left*) The starboard console of a demonstration Su-27 Flanker-B. (*Marcus Fülber*)

A PVD-7 pitot tube is slightly below the canopy of the Su-27 "Blue 31."



Two PVD-7 pitot tubes are located on the port side of the Su-27 Flanker-B.

The starboard angle-of-attack sensor, located on the bottom right of the tactical number, is covered on the Su-27 "Blue 36." The flag of the Soviet Air Force is painted in front of the tactical number. Most Flankers have the tactical number outlined in White. "Blue 36" belongs to the 941 Istrebitel'nyi Aviapolk (941st Fighter Aviation Regiment). (*Andrej Zinchuk*)



The Su-27 "Red 03" belongs to the 941 Istrebitel'nyi Aviapolk (941st Fighter Aviation Regiment). The five stars in front of the tactical number denote live shootings with air-to-air missiles. The inscription under the canopy reads "Strazhi Severa" (Guards of the North). Unit markings became more common with Russian Air Force units after the breakup of the Soviet Union. (*Andrej Zinchuk*)

(*Above*) The Su-27 "Blue 39" taxis out on a cold winter day from Kilp-Yavr airfield on the Kola Peninsula. The partial White outlining on the Blue tactical number is not standard and is rarely seen on Su-27s. This Flanker-B previously flew with the 431 Istrebitel'nyi Aviapolk (431st Fighter Aviation Regiment). The unit badge below the two PVD-7 pitot tubes under the canopy is painted only on the port side. Su-27s of the same unit have the squadron badge on the nose in front of the tactical number. The Sukhoi logo, which was applied at the factory, is only applied on the port tail fin, while the unit badge of the 941 Istrebitel'nyi Aviapolk (941st Fighter Aviation Regiment) is applied on the starboard tail fin. Many Su-27s were retrofitted with a second ECM antenna on the wing root extension. Initially the Flanker-B single-seat version of the Su-27 carried only one ECM antenna on the wing root extension. (*Andrej Zinchuk*)

(*Left*) The Su-27 "Blue 36" has two Red stars, designating live shootings of air-to-air missiles, and 10 White stars denoting 10 shootings of heat-seeking air-to-air missiles against parachutes equipped with flares. A unit badge belonging to one of the squadrons of the 941 Istrebitel'nyi Aviapolk is painted in front of the tactical number. It is an eagle holding a missile. The Su-27 carries the flag of the Soviet Air Force on its starboard side, about the same position as the squadron badge. This banner has been used since World War II. The angle-of-attack sensor and the PVD-7 pitot tubes are covered when the Flanker-B is parked. (*Andrej Zinchuk*)

The Su-27 (T-10-33) "Blue 33" is one of the first Flanker-Bs produced at State Aircraft Factory 126 "Yuri Gagarin" at Komsomolsk-on-Amur. "Blue 33" carries anti-flutter weights on the tail fins, typical for very early Su-27s. "Blue 33" does not have the tactical number on its tail fin, which is unusual for Su-27s. It has no pylons on its wings, also unusual for Flanker-Bs. (*Sukhoi OKB*)

The outer APU-73 missile rail on an Su-27 Flanker-B carries R-73 (AA-11 "Archer") air-to-air missiles.

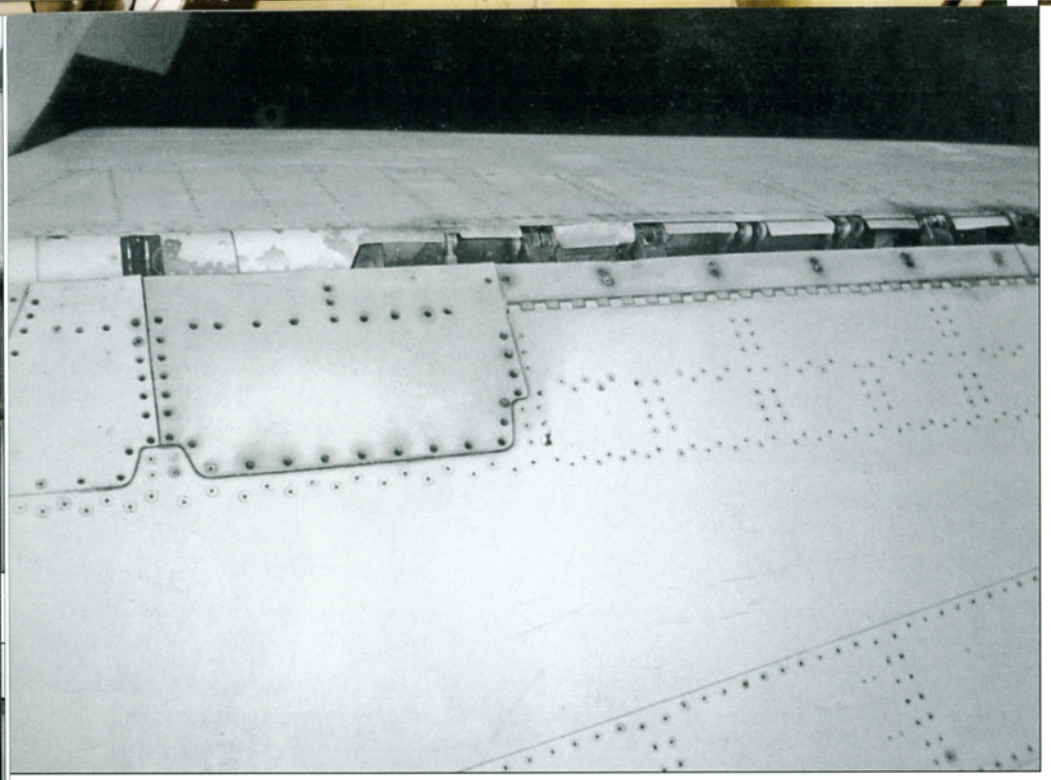
The inner APU-470 wing pylon carries R-27 (AA-10 "Alamo") air-to-air missiles.

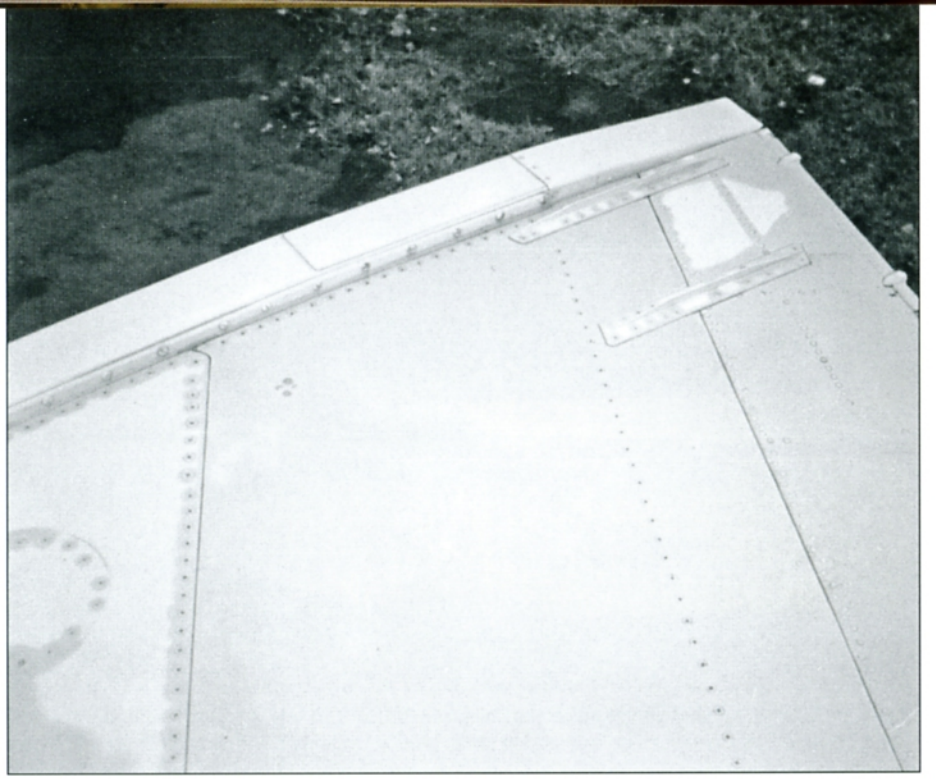
The wing tip of the Su-27 serves as a launching rail for R-73 (AA-11 "Archer") air-to-air missiles. The wing tip launching rail can be exchanged for an L-005 Sorbtsiya-S (Absorption-S) jamming pod.

A Red position light is fixed on the port wing tip of an Su-27. Two static dischargers are located on the edge of the wing. (*Pavel Türk*)

The port leading-edge root extension of the Su-27 "Blue 31" houses some of the Flanker's avionics. Ammunition for the GSh-301 30 mm cannon is loaded through the rectangular access hatch. Above the access hatch is an avionics cooling air vent.

The wing's leading-edge slats are fixed to the outer wing panel through the use of piano hinge rods. The ECM antenna is located on the leading-edge root extension, close to the wing leading-edge slats. The leading-edge slats can be extended to 30 degrees.

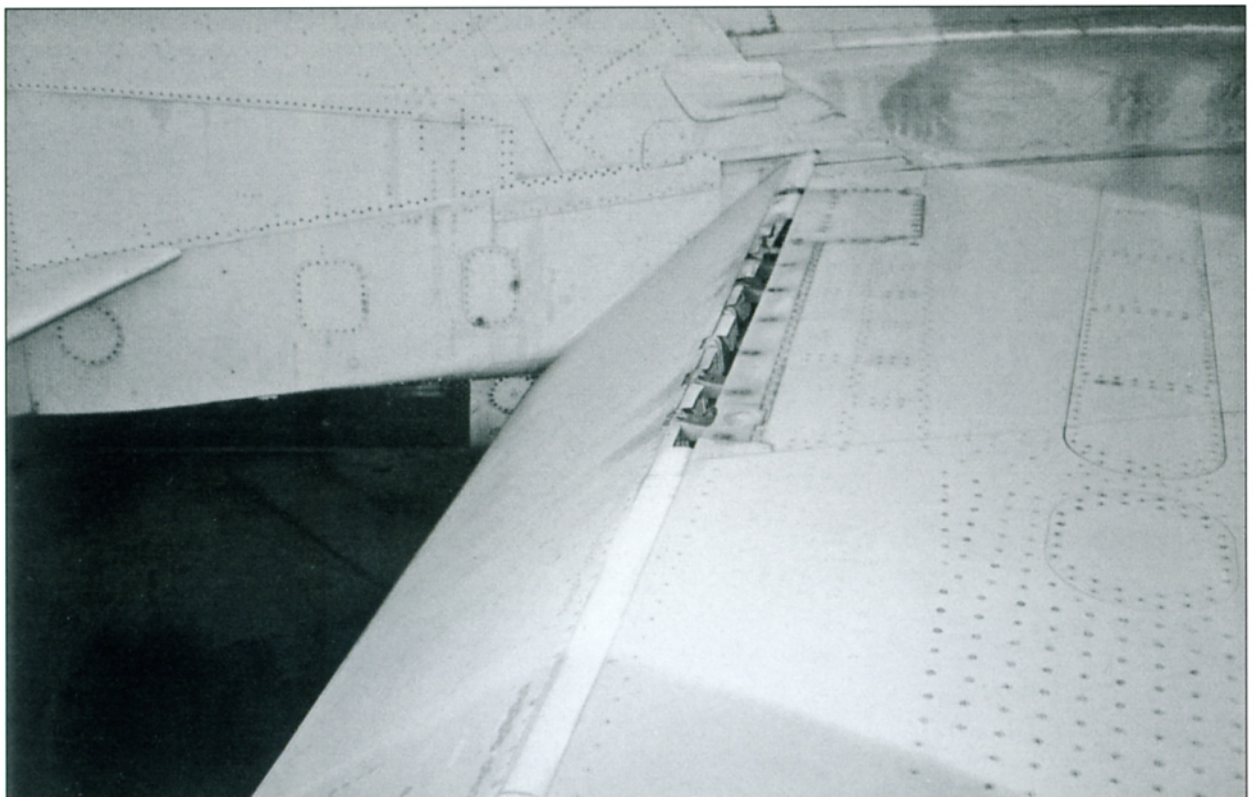




(*Above left*) The hinges for the flaperons on an Su-27 Flanker-B, viewed from the top. (*Sergej F. Sergejev*)

(*Above right*) The wing tip of an Su-27 Flanker-B. An air-to-air missile pylon is mounted on the wing tip.
(*Sergej F. Sergejev*)

(*Right*) The flaperons have an area of 52.68 square feet (4.9 square meters). The flaperons can be deflected from +35 degrees to -20 degrees. (*Sergej F. Sergejev*)



The Su-27 "Blue 41" is part of the 582 IAP (582 Istrebitel'nyi Aviapolk/582nd Fighter Aviation Regiment) at Chojny airbase in Poland. The anti-flutter weights on the tail fins denote this as an early-production Flanker-B. All weapon stores are loaded with R-27 (AA-10 "Alamo") and R-73 (AA-11 "Archer") missiles. The 582 IAP belonged to the 239th Fighter Aviation Division, Fourth Air Army. The leading-edge slats are fully deployed to 30 degrees. Most Su-27s have the tactical number applied on the tail fin painted smaller than on the nose. The tactical number on both positions is White outlined. (*Wojciech Luczak*)

The Su-27 "Red 08" belongs to the 760 IISAP. "Red 08" has the an L-005 Sorbtsiya-S (Absorption-S) jamming pod on its wing tip. The Sukhoi OKB logo under the canopy is unusual. "Red 08" has a shark painted on its port fuselage with the shark's mouth on the air intake. (*G.F. Petrov*)

An L-005 Sorbtsiya-S (Absorption-S) jamming pod is mounted on the starboard wing tip of the Su-27 "Red 08." The covering on the front and the rear of the pod are White. A position light is mounted on the jamming pod. (*Dimitry Grinyuk*)

(*Above*) The KT-156 D (KT stands for Koleso Tormozhnnoi/Braked Wheel) main wheel of an early-production Su-27 Flanker-B has a plain rim with a cross over the circular aperture. Only a few very early Su-27s are equipped with this kind of main wheel.

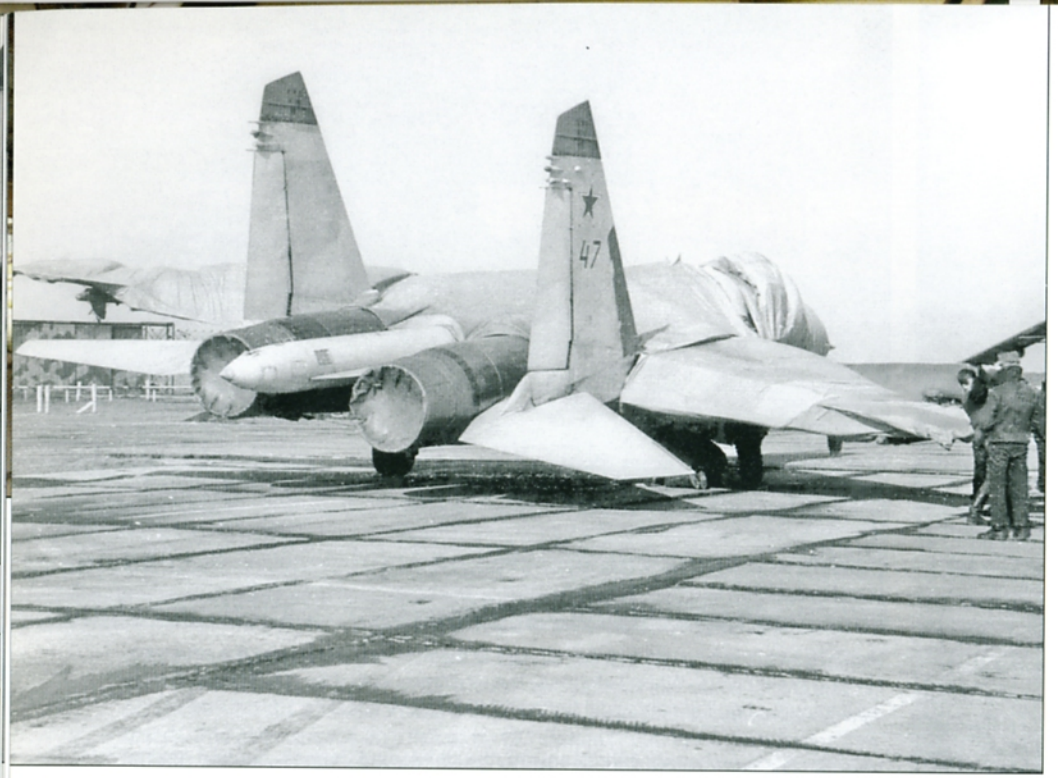
(*Right*) The standard rim of a KT-156 D main wheel has the large circular aperture exchanged for a number of small circular apertures in the center of the rim. In contrast to the KN-27 nose wheel, the KT-156 D main wheels are equipped with brakes. The main wheel is 40.5 inches by 13.7 inches (1,030 mm by x 350 mm). The KT-156 D main wheel is equipped with a Model 1A tubeless tire. The undercarriage of the Su-27 enables the fighter to operate from unprepared fields. (*Jozef And'al*)

(*Below*) Most of the early-production Su-27 Flanker-Bs are equipped with a vaulted rim. The circular aperture in the center of the rim was enlarged, but the cross over the circular aperture remains. This KT-156 D main wheel belongs to the Sukhoi OKB demonstration aircraft Su-27 "Blue 388." (*Urs Harnisch*)

(*Left*) The main wheel strut of the KT-156 D main wheel, seen from the rear, has slanting main pivots. When extended, the struts are locked by mechanical down-locks mounted on the reinforced frames of the engine nacelles. (*Jozef And'al*)

(*Above*) A drop-shaped fairing covers the reinforced frames on the engine nacelles. Apart from the rim, the KT-156 D main wheel of the Su-27 Flanker-B remained unchanged through its production cycle. (*Pavel Türk*)

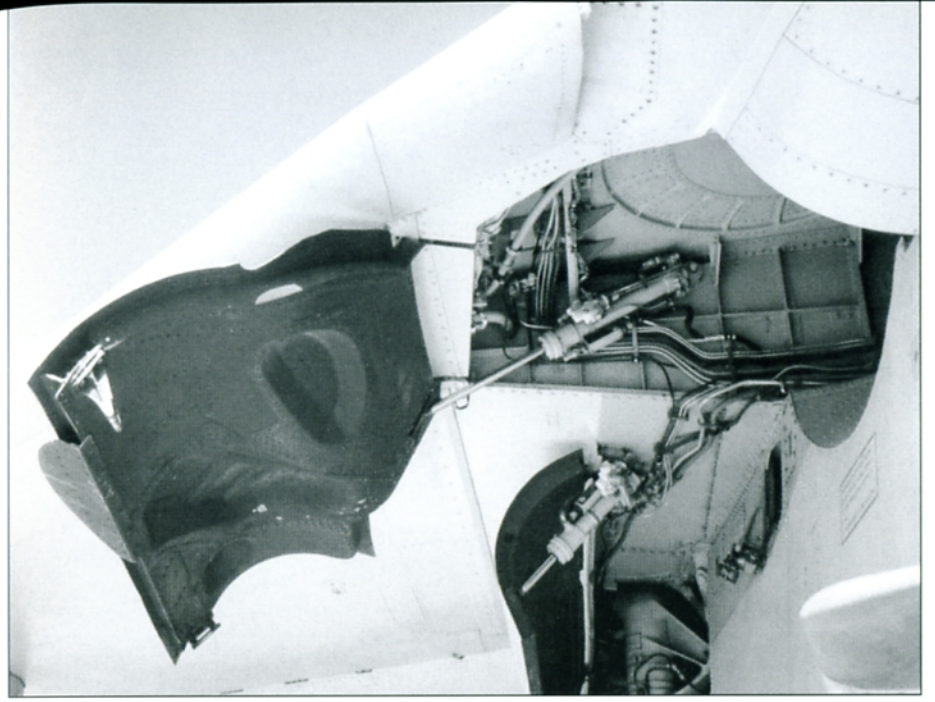
(*Below*) Two main wheel doors covered the KT-156 D main wheel well. The doors were hydraulically actuated. The KT-156 D retracts forward into the aft cockpit bay. (*Simon Watson*)



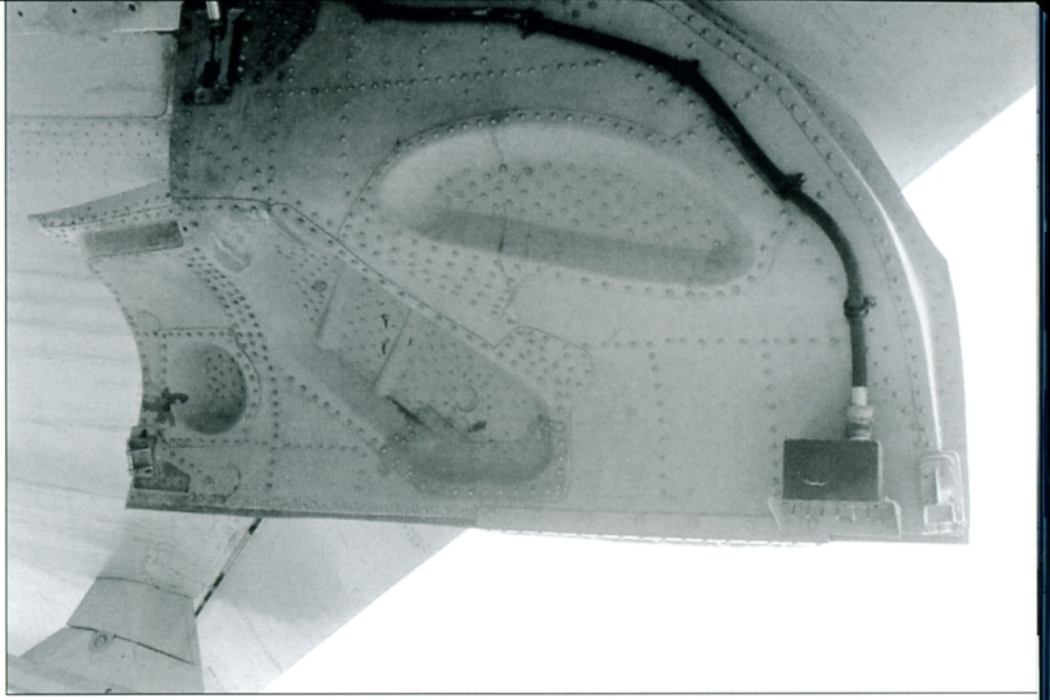
(*Above left*) The starboard main wheel of Su-27 "Red 47" collapsed at Mirgorod airbase near Poltava, Ukraine. During the summer of 1944, Mirgorod was a base for American B-17s with the 8th and 15th Air Forces. The B-17s from Ukrainian bases attacked targets in Germany that were out of range of their home bases in England and Italy. (*Sergej F. Sergejev*)

(*Above right*) The wing tip of the early-production Su-27 "Red 47" was damaged when the KT-156 D main wheel collapsed in 1989. The engine nozzles were covered. (*Sergej F. Sergejev*)

(*Right*) The lower main wheel leg of the starboard KT-156 D main wheel on the Su-27 "Red 47" broke in two parts. Hydraulic lines were attached to the main wheel strut. "Red 47" was part of the 185 IAP (185 Istrebitel'nyi Aviapolk/185th Fighter Aviation Regiment). (*Sergej F. Sergejev*)



The starboard main wheel door of the Su-27 Flanker-B is hydraulically actuated. Most Su-27s have the inner surfaces of the main wheel door painted Red. However, the early-production Su-27s have the inner main wheel doors painted Gray. (*Pavel Türk*)



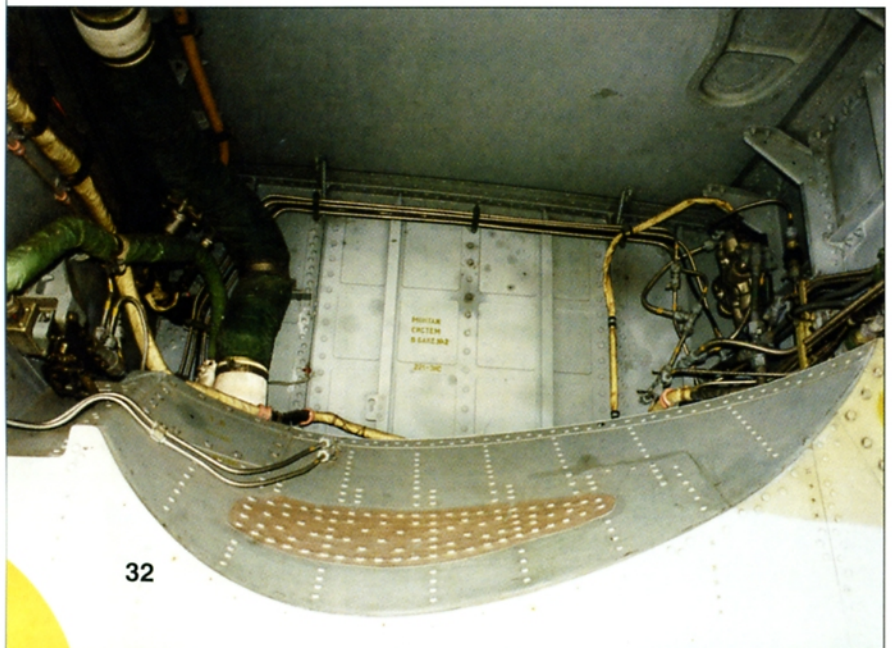
The port main wheel door of an early-production Su-27 Flanker-B has the inner surfaces painted Gray. The port main wheel door has a sensor with a cable mounted on the lower part of the door. The starboard door does not have a cable.

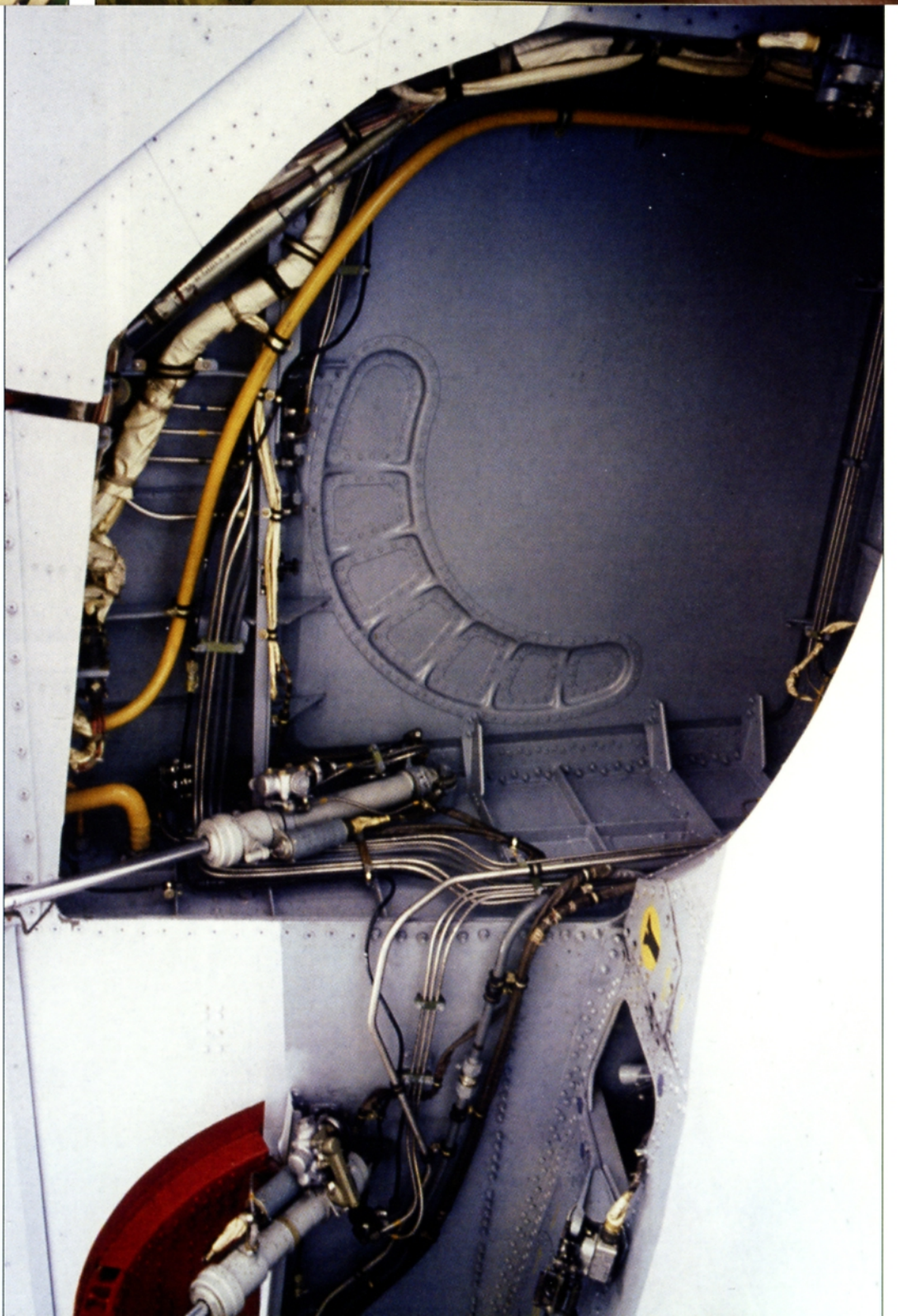
The early-production Su-27 "Blue 26" carries a full armament of R-27 (AA-10 "Alamo") and R-73 (AA-11 "Archer") air-to-air missiles. This Flanker-B has the early rim configuration on its KT-156 D main wheel with a cross-shaped covering over the circular aperture. The KN-27 nose wheel is equipped with the early mudguard. The inner part of the nose wheel door is painted Gray, not Red as on most Flanker-Bs. (*A.A. Zirnov*)

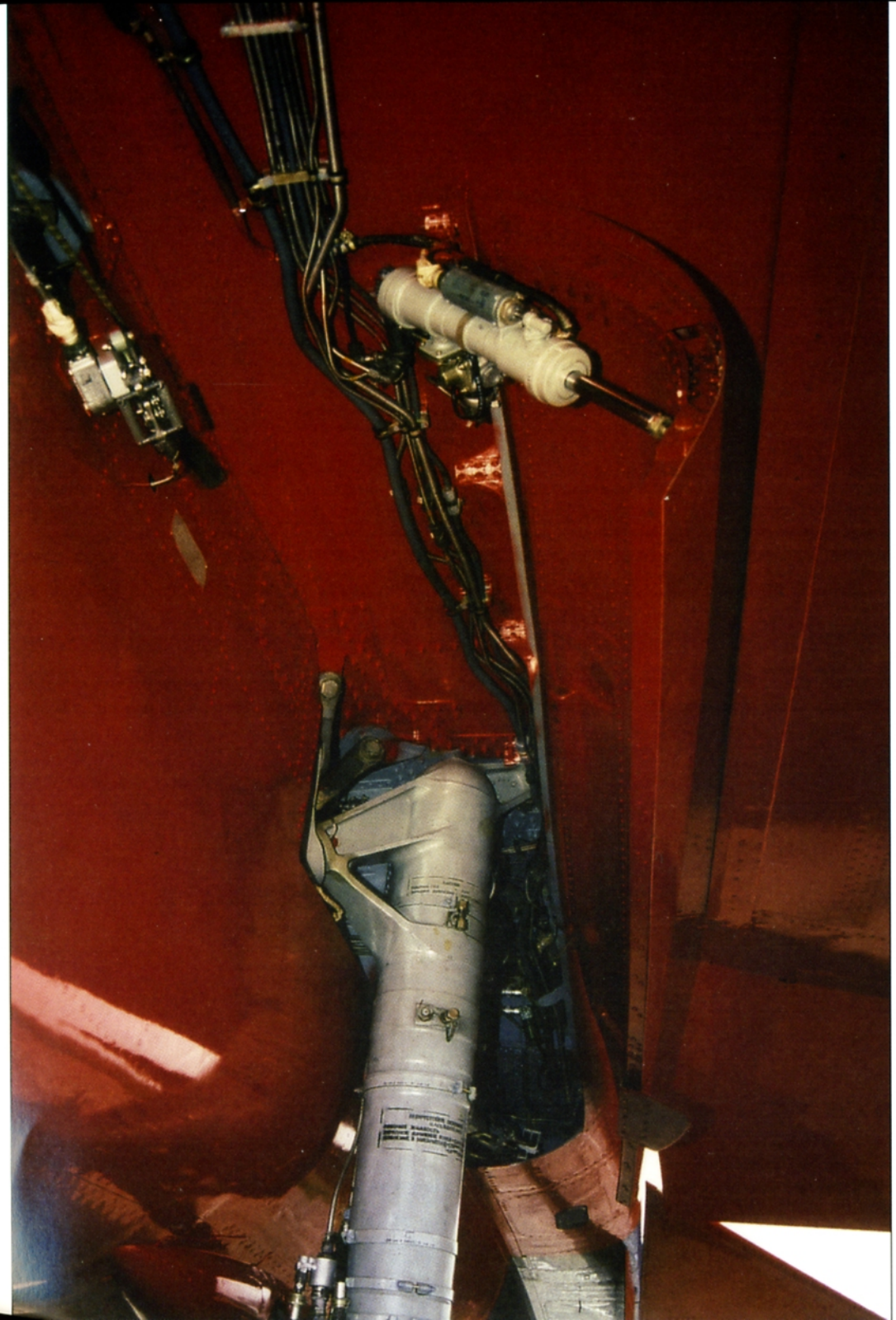
(*Above*) The port front main wheel well of a Ukrainian Su-27 Flanker-B. (*Jozef And'al*)

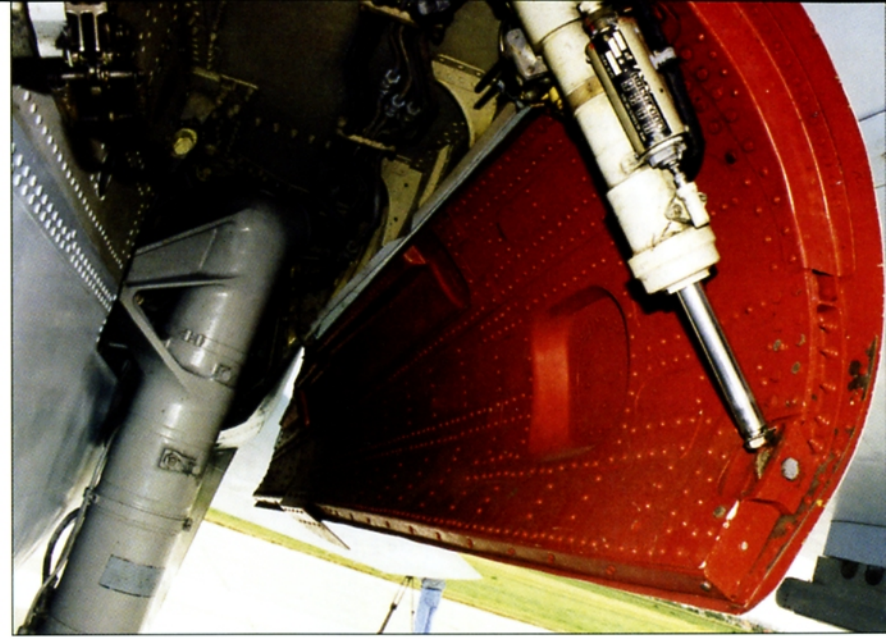
(*Right*) The main wheel well of an Su-27 Flanker-B is painted Gray. All Soviet fighter aircraft have the fuel lines painted Yellow, a holdover from the World War II German Messerschmitt Me 262. The German Luftwaffe painted all fuel lines in their jets Yellow. The tubes and the wiring are part of the electrical and hydraulic systems. (*Jens Schymura*)

(*Below*) The upper port main wheel well has a number of reinforcement struts. (*Jozef And'al*)





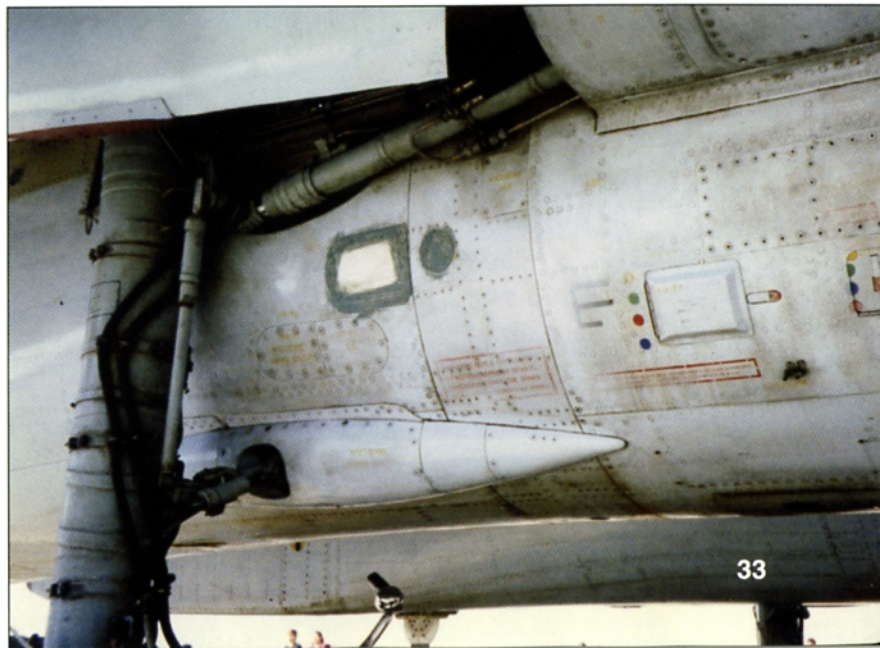




(Above) The port rear main wheel door has a hydraulic actuator. This is a Ukrainian Flanker, and the Ukrainians have adopted the Soviet practice of painting the insides of the landing gear doors Red. (*Jozef And'al*)

(Left) The port rear main wheel door, like all main wheel doors, was hydraulically actuated. The actuator jack is mounted to the front of the rear main wheel door. (*Marcus Fülber*)

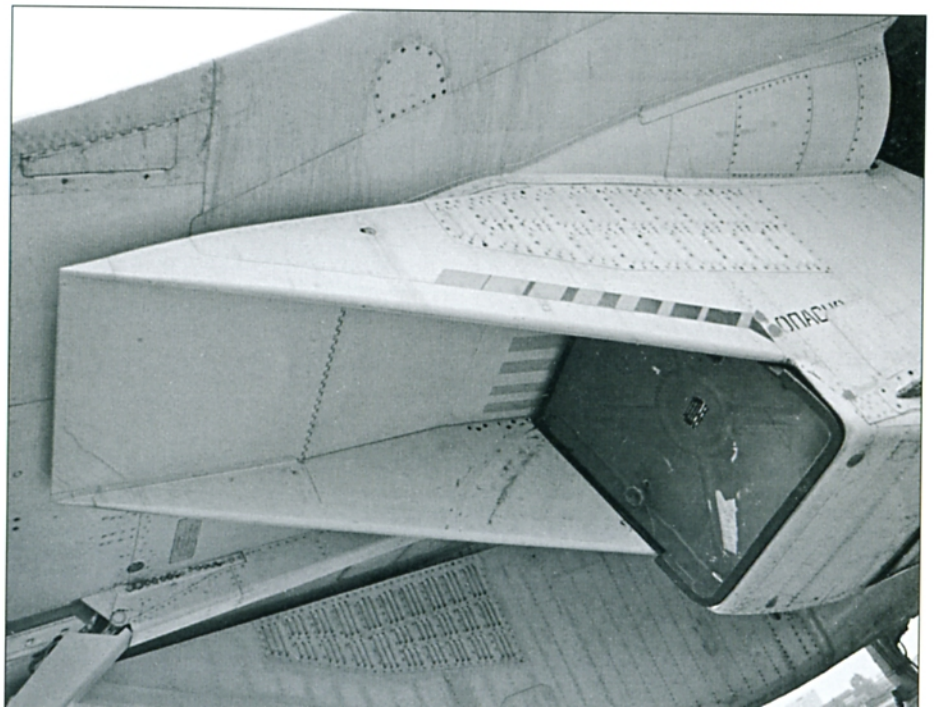
(Below) When extended, the main gear struts are held by mechanical locks mounted on the reinforced frames of the engine nacelles. This design strengthens the main gear and allows operation from unprepared fields. (*Pavel Türk*)

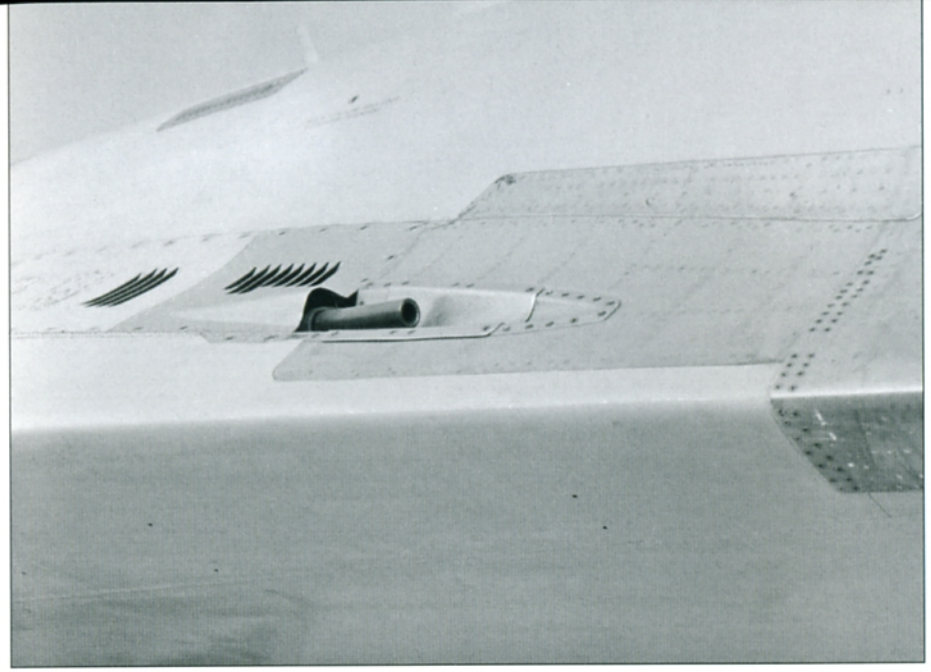


These standard-production Su-27s belong to the 159 Istrebitel'nyi Aviapolk (159th Fighter Aviation Regiment). This unit was based at Kluczewo airbase in Poland. These Su-27s performed mock combat against the MiG-21 MFs of the 2 Pulk Lotnictwa Mysliwskiego "Krakow" (2nd Fighter Aviation Regiment "Krakow"). The 159 IAP left Poland in 1992. The extreme range of the Flanker allowed fully armed Su-27s belonging to the 159 IAP to take off at Kluczewo on the Baltic coast in Poland and fly to the proving ground near Astrakhan on the Caspian Sea. Over the Caspian Sea, missiles were fired against drones before the Su-27s headed for a Soviet base on the Black Sea, where the Flankers were refueled. These Su-27s do not have the Sukhoi OKB logo painted on the starboard fin. The fin-tip VHF aerial fairing and the fin-leading HF aerial were painted Radome Green, while the radome is painted White. (*Wojciech Luczak*)

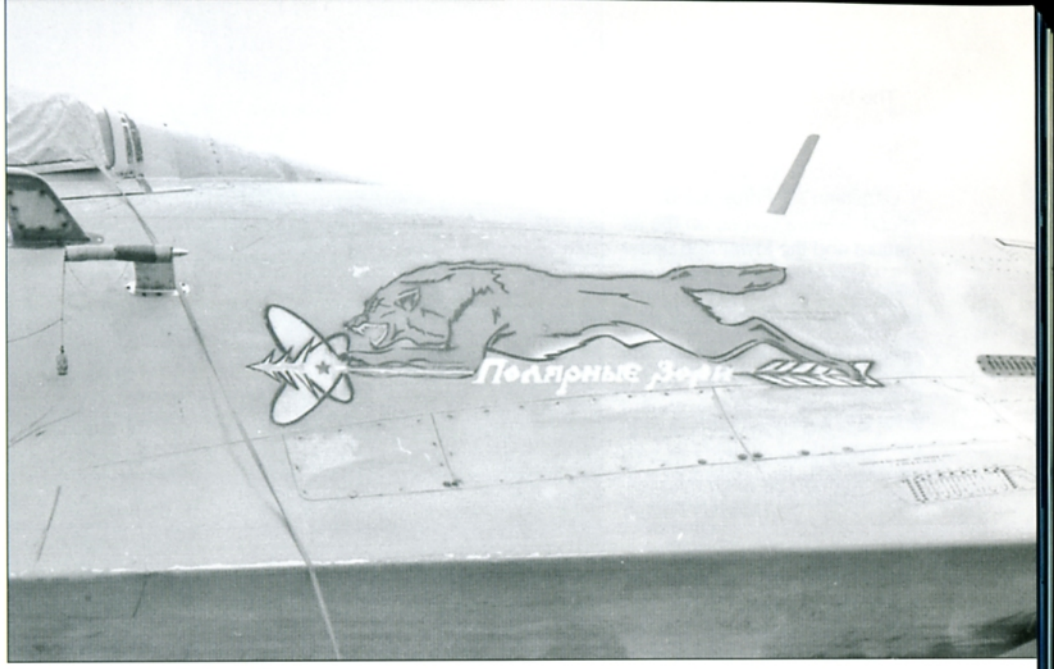
The Su-27 "Red 03," which belongs to the 941 Istrebitel'nyi Aviapolk (941st Fighter Aviation Regiment), is being rearmed with a movable platform. The ammunition bay located in the port fuselage can hold 150 30 mm projectiles. (*Andrej Zinchuk*)

The engine intakes of the Su-27 Flanker-B are sharply raked, providing excellent performance through a wide angle-of-attack range. They incorporate multiple variable ramps, bleed slots, and spills to control flow and give maximum control of shock wave formation in the intake.

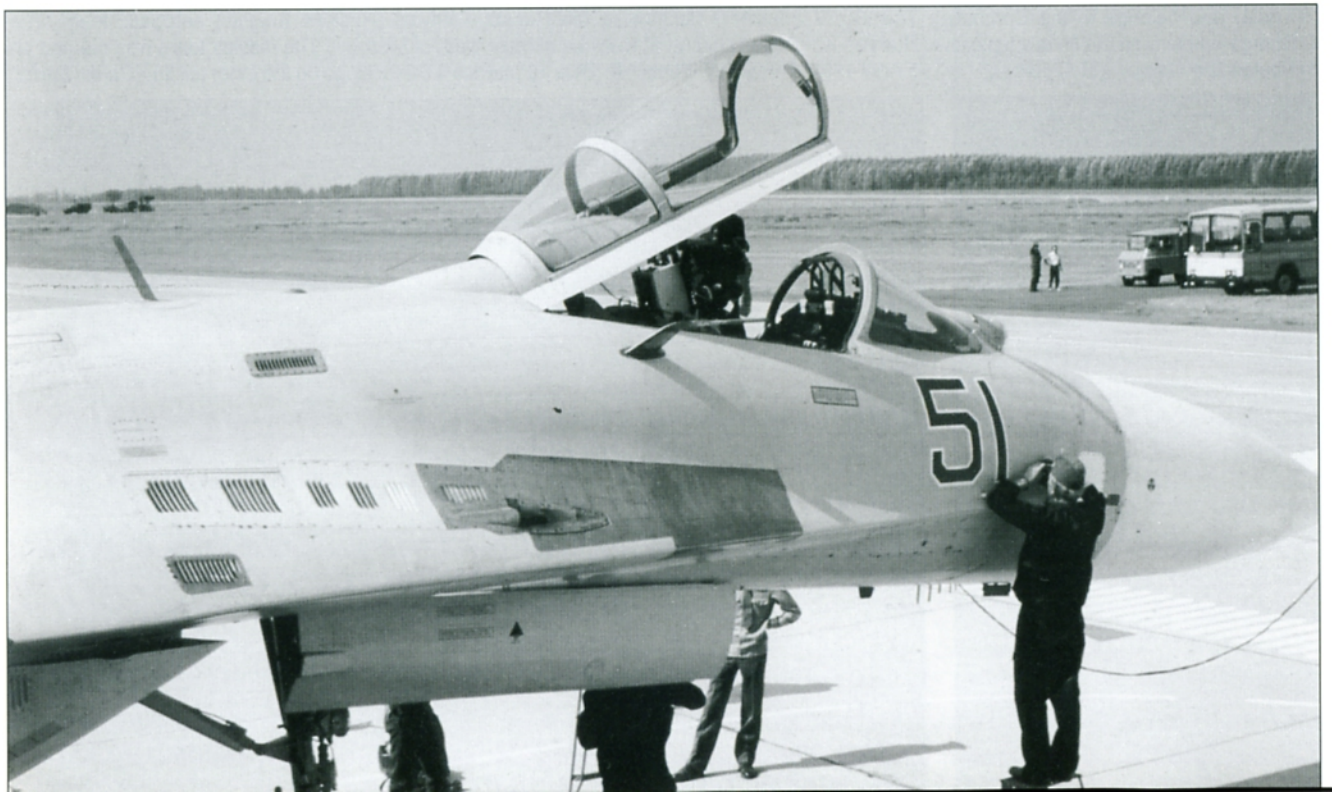




The GSh-301 30 mm cannon is mounted in the starboard wing leading-edge root extension. A large titanium blast shield is mounted around the nozzle of the cannon. The blast shield is designed to prevent damage to the fuselage from the cannon blast. The titanium blast shield was always left unpainted. Small vents behind the gun prevent the buildup of gases when the GSh-301 is fired.



Art on Su-27s became more common after the breakup of the Soviet Union. The inscription reads "Polyarnye Zori." The painting was applied to the rear port fuselage of a Flanker-B belonging to the 941 Istrebitel'nyi Aviapolk (941st Fighter Aviation Regiment) at Kilp-Yavr airfield on the Kola Peninsula. (*Andrej Zinchuk*).



The GSh-301 30 mm cannon is mounted in the starboard wing root extension of an Su-27 Flanker-B. The 30 mm cannon weighs just over 100 lbs. (46 kg) and is almost 6.5 feet long (1,978 mm). The GSh-301 has a rate of fire between 1,500 and 1,800 rounds per minute. The muzzle velocity is 2,821 feet per second (860 meters per second). The ammunition bay in the starboard wing root extension holds 150 rounds. The internal liquid cooling system and the external air cooling provide the cannon with a long service life and an endurance of 2,000 rounds. The slots are part of the external air-cooling system. This Su-27, "Red 51," belongs to the 159 Istrebitel'nyi Aviapolk (159th Fighter Aviation Regiment). (*Marcus Fülber*)

The Su-27 "Blue 43" is part of the Ukrainian Air Force. The splinter scheme camouflage is unique to Flankers of the Ukrainian Air Force. Ukrainian roundels were carried on the air intake and the lower and upper wing surfaces. Initially, the Ukrainian Su-27s did not carry national markings on their air intake ducts. The crest with the trident is only carried on the fin. "Blue 43" lacks the inboard AKU-470 wing pylon to accommodate R-27 (AA-10 "Alamo") air-to-air missiles. (*Marcus Fülber*)

The Su-27 Flanker-B "Blue 10" is based at Savasleika, Russia, and belongs to the Combat Employment and Flight Personnel Retraining Center. The St. George emblem on the fin is a typical feature of Savasleika-based Su-27s. A Russian flag is painted below the canopy. (*G.F. Petrov*)

This Su-27 Flanker-B belongs to the Russkiye Vityazi (Russian Knights) aerobatic team. The Russian Knights are based at Kubinka airbase west of Moscow. The display team was created on 5 April 1991. The Su-27 Flanker-B "Blue 10" carries a Sukhoi logo on the inner tail fin. (*Daniel Bader*)

(*Left*) The standard-production Su-27 Flanker-B comes off the production line with a single ECM antenna on the wing leading-edge root extension. The ECM antenna is painted Radome Green or White. The fairing at the base of the air intake duct houses the SPO-15 (L-006) Bereza radar homing and warning system. This fairing is painted either Radome Green or White. Most early Su-27s have Radome Green coverings over their antennas.

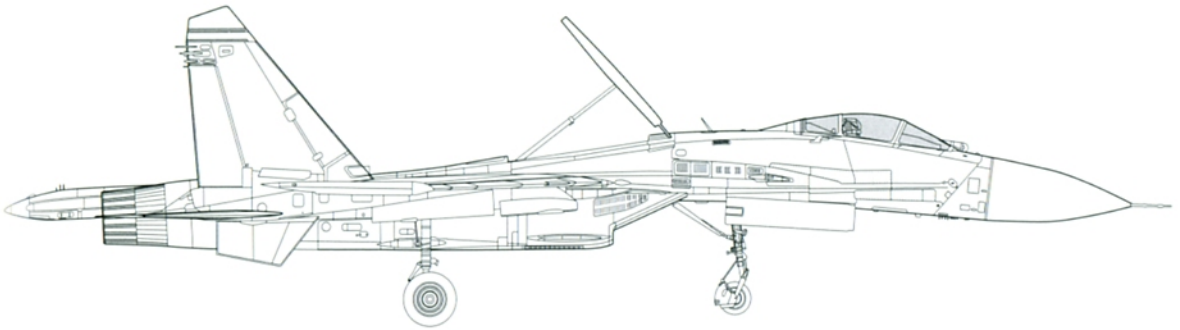
(*Below left*) This Su-27 belonging to the Russkiye Vityazi (Russian Knights) aerobatic team has two ECM antennas mounted on the wing leading-edge root extension. All Su-27s of the Russkiye Vityazi and many Flanker-Bs equipped with the L-005 Sorbtsiya-S (Absorption-S) jamming pod on the wing tip have two ECM antennas on both wing leading-edge root extensions. A number of standard production Su-27s were also upgraded with additional ECM antennas on the wing leading-edge root extensions at the beginning of the 21st century. All antennas are painted White, including the fairing at the base of the air intake duct. The emblem of the Russkiye Vityazi is on the starboard side air intake duct. The Sukhoi OKB logo is painted on the port air intake duct. (*Simon Watson*)

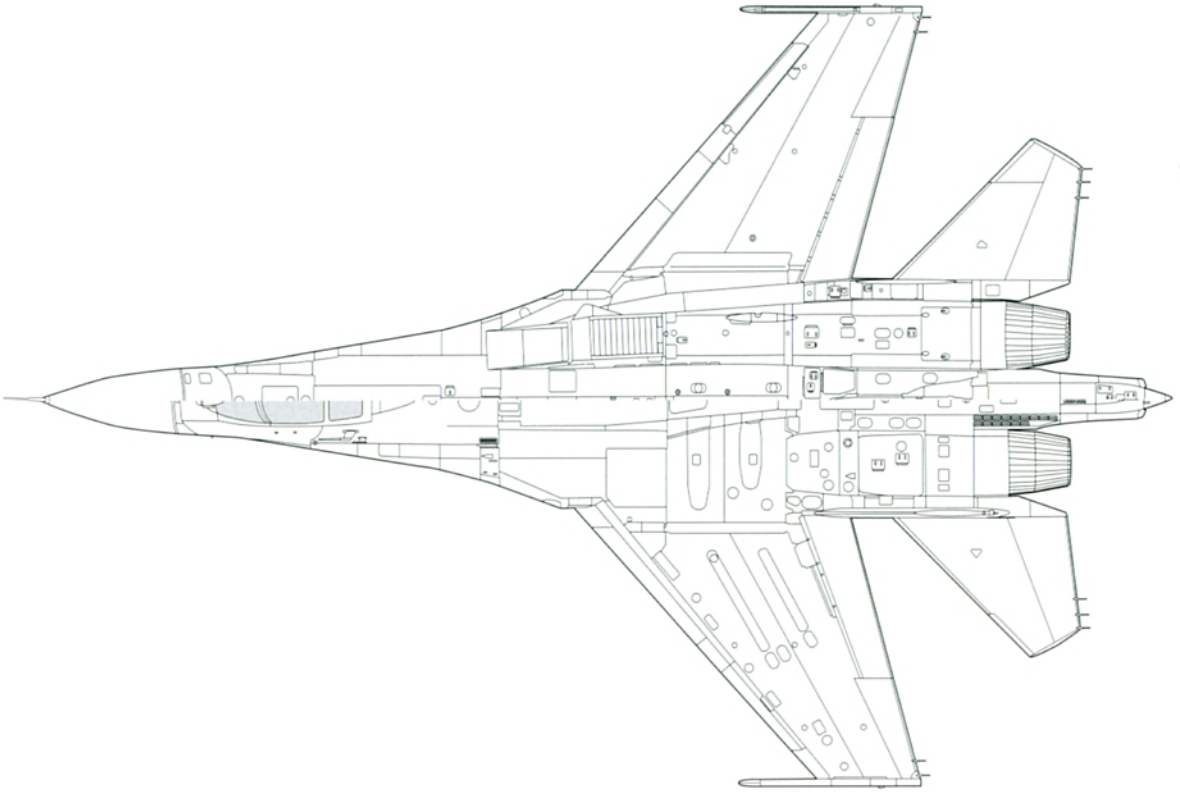
(*Below right*) This modified Su-27, "Red 08," belongs to the 760 IISAP (760th Instructor Research Composite Aviation Regiment) and is based at Lipetsk. A large shark is painted on the fuselage and the air intake duct. This Su-27 Flanker-B carries two White ECM antennas on the wing leading-edge root extension. The shark is only applied on the port side. On the starboard side, just the shark's mouth is painted on the air intake duct. In the course of its service, the Flanker-B was retrofitted with L-005 Sorbtsiya-S (Absorption-S) jamming pods on the wing tips. (*G.F. Petrov*)

(*Right*) The Su-27 Flanker-B has a large air brake mounted on the upper surface. Instead of using the drag chute, many pilots rely on the power of the air brake and the main wheel-mounted brakes. This Su-27, "Blue 09" of the Russkiye Vityazi (Russian Knights), has the air brake fully deployed at 54 degrees during a landing near Moscow. The air brake can be used at speeds up to 620 mph (1,000 kph). (*A.A. Zirnov*)

(*Below*) "Blue 09" comes to a halt at Kubinka airbase near Moscow with a fully deployed air brake. The large air brake is hydraulically actuated and has an area of nearly 28 square feet (2.6 square meters). (*A.A. Zirnov*)

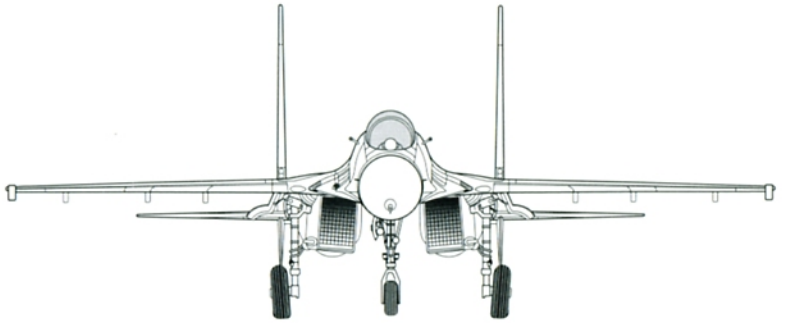
Sukhoi Su-27 "Flanker-B" (Late Production)





Specifications

Length (without nose probe)	71 ft. 11.6 in. (21.935 m)
Wingspan	48 ft. 2.66 in. (14.698 m)
Height	19 ft. 5.54 in. (5.932 m)
Weight, empty	35,273 lbs. (16,000 kg)
Maximum take-off weight	66,137 lbs. (30,000 kg)
Engine	two Lyulka AL-31 F engines
Maximum speed	mach 2.35
Fuel	20,723 lbs. (9,400 kg)
Range	2,423 miles (3,900 km)
Rate of climb	64,000 ft./min. (19,507 m/min.)
Service ceiling	60,695 ft. (18,500 m)
Armament	1 GSh-301 30 mm cannon; 10 hardpoints



Russian Flanker Units

The following Russian units operated the Flanker at the beginning of the 21st century:

47 IAP	Zolotaya Dolina
54 IAP	Savostleika
159 IAP	Besovets (formerly based at Kluczewo, Poland)
177 IAP	Lodeynoye
209 IAP	Astrachan
470 IAP	Atrikanda
562 IAP (PVO),	Krymskaya
611 IAP (PVO)	Dorokhovo
641 GIAP	Rogachovo
941 IAP (PVO)	Kilp-Yavr

An early Su-27 Flanker-B, "Red 04," rests on a Soviet airfield. The early Su-27s were equipped with anti-flutter weights on each tail fin. The anti-flutter weights were a holdover from the preseries T-10 Flanker A and were omitted from most production models of the Flanker. The American F-15 Eagle continues to use anti-flutter weights. (*A.A. Zirnov*)

The Su-27 "Red 05" was built in 1987 and delivered to a fighter aviation regiment. Because of inferior performance, it was rejected and allocated to the Lyotno Issledovatel'ski Institut (Flight Research Institute) at Zhukovsky as a test bed. The aircraft received the designation LMK-2405 (LMK stands for Lyotno Modeliruyushchy Kompleks/Flight Simulation Complex) and is continually modified for developing flight safety procedures and control techniques. For this reason, the LMK-2405 received additional antennas not mounted on standard-production Su-27s. (*Viktor Kulikov*)

The standard production Su-27 "Red 29" carries a full missile load. On the inner APU-470 wing pylons are R-27 ET air-to-air missiles with heat-seeking warheads. On the AKU-470 fuselage pylons are R-27 ER missiles with semiactive radar homers. Early standard-production Su-27 Flanker-Bs have the radome and the tail fin tips painted Radome Green. Most Su-27s have either Blue or Red tactical numbers. "Red 29" has its tactical number outlined in White. (*A.A. Zirnov*)

(*Above left*) All Su-27 Flanker-Bs were equipped with automatic direction finder (ADF) omnidirectional aerials mounted on the top rear of their fuselages. (*Sergej F. Sergejev*)

(*Above right*) The large air brake is located on the top rear of the fuselage and is hydraulically operated. The Radome Green fairing covers the A-318 automatic radio compass. (*Sergej F. Sergejev*)

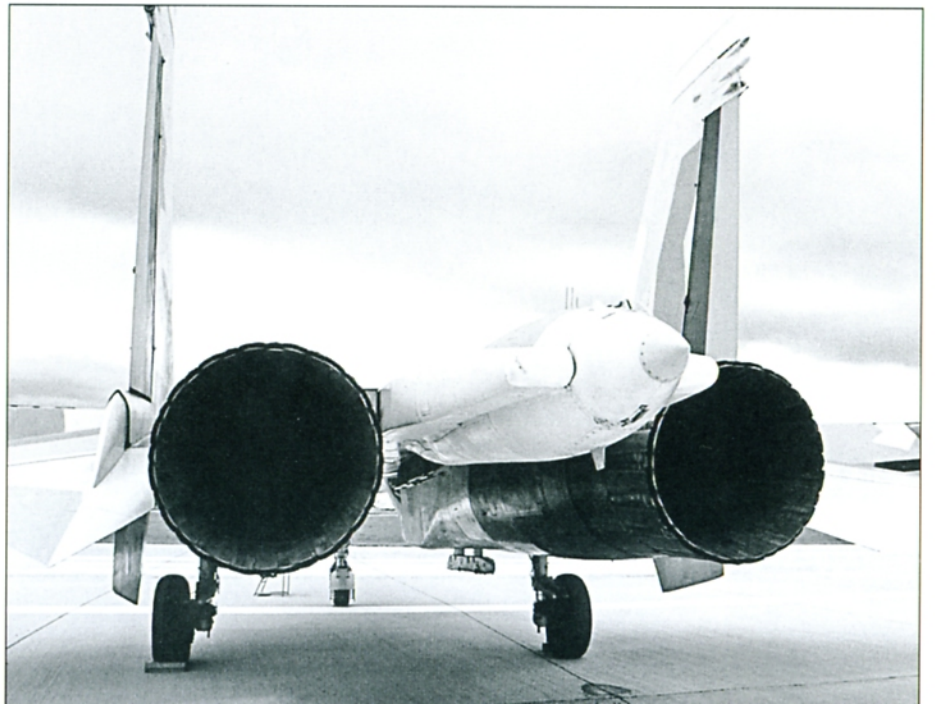
(*Left*) The A-318 automatic radio compass is located on the top rear of the fuselage, just behind the air brake. The aerial for the radio compass is painted either Radome Green or White on standard-production Su-27 Flanker-Bs. (*Sergej F. Sergejev*)

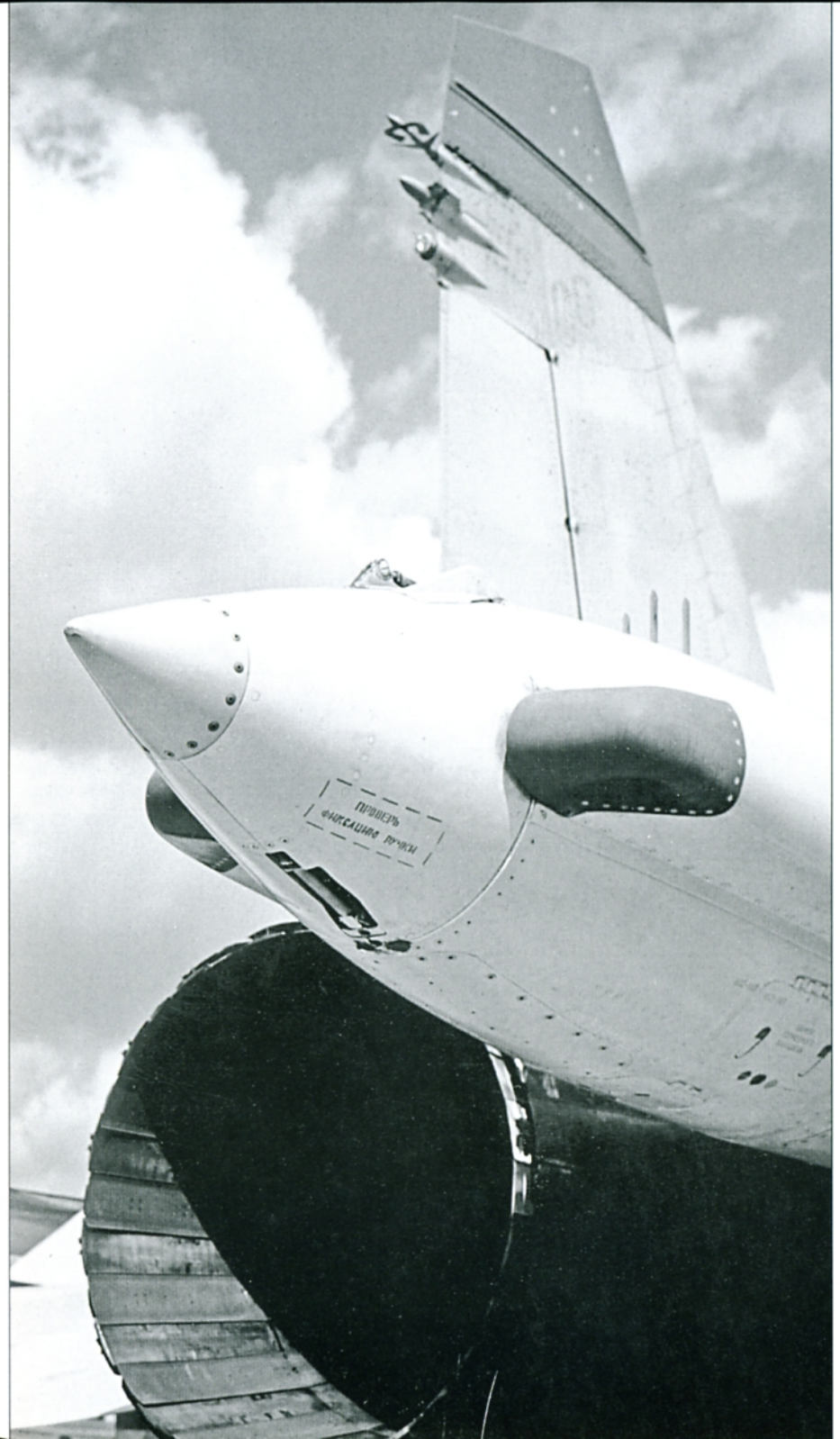
The early Su-27s have a tail sting with small lateral strakes and no box fairings. Twenty-four chaff/flares are carried by an APP-50 chaff/flare dispenser system in the early Flanker models.

Late Su-27 Flanker-Bs have a revised tail sting with a box fairing on each side housing ECM antennas and 54 chaff/flares held by the APP-50 chaff/flare dispenser system. Early Flankers only have 24 chaff/flares. Standard-production Su-27s have the antenna covering painted Radome Green. The blade-shaped and the boom-shaped antennas mounted on the platform below the tail cone are not standard for Flanker-Bs. They are a distinctive feature of the Su-27 "Red 05," which was used by the Lyotno Issledovatel'ski Institut (Flight Research Institute) as a test bed.

The port tail of the early-production Su-27 "Blue 31" has access hatches that were relocated on subsequent models with a revised tail sting.

A late-production Su-27 Flanker-B has the stretched sting modification that was introduced in 1987. Late-production Su-27s have the rear covering of the ECM antenna painted White. These late-production Su-27s are also equipped with a UHF aerial on the lower tail sting. Standard-production Su-27 Flanker-Bs also have the revised tail sting but lack the UHF aerial. Most of the early-production Su-27 Flanker-Bs have the antenna covering painted Radome Green. The conical drag chute door is typical for Flanker-Bs. (*Jozef And'al*)

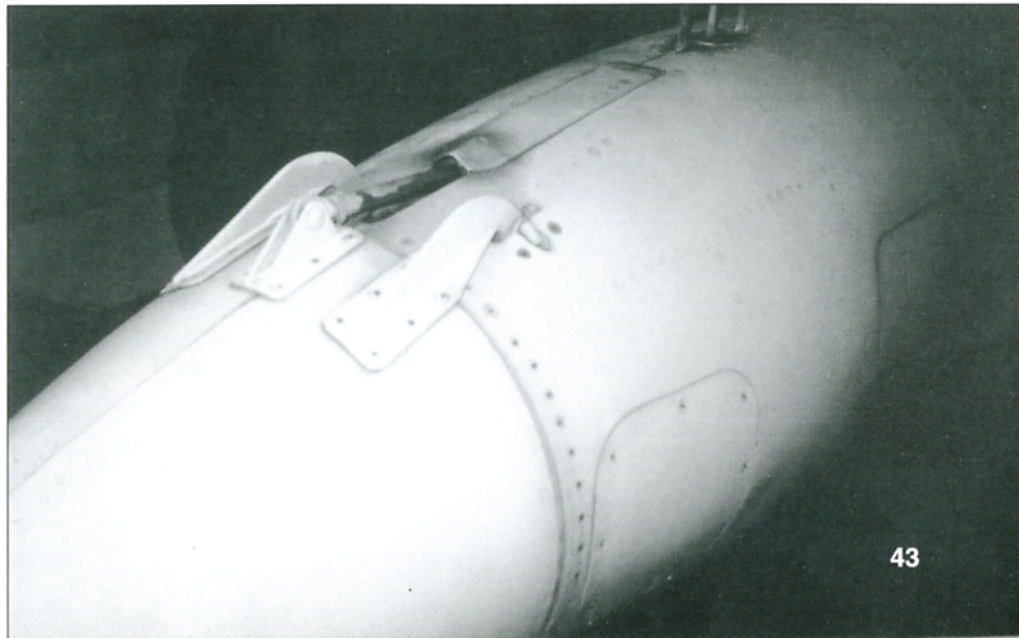




(*Left*) The tail sting of an early-production Su-27 Flanker-B lacks a UHF aerial. The covering for the ECM antenna is painted Radome Green, which is a typical feature for early Su-27s. The rear part of the tail sting houses two drag chutes that were covered by a conical fairing parachute door. (*Urs Harnisch*)

(*Above*) The conical fairing parachute door of an early Su-27 Flanker-B is hinged upward to facilitate drag chute deployment. Early Su-27s lack the UHF aerial on the lower tail sting. (*Sergej F. Sergejev*)

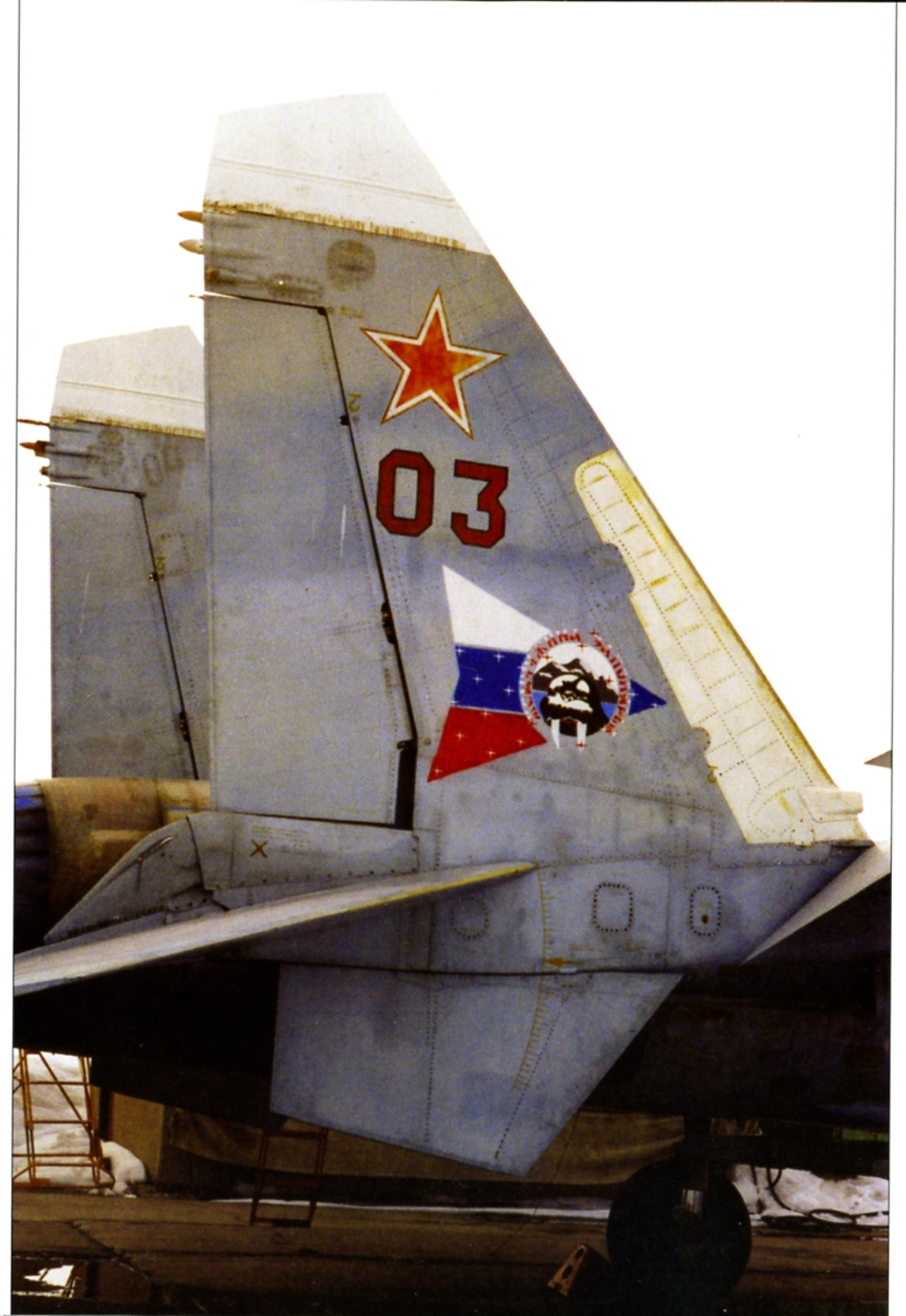
(*Below*) The upper conical parachute door of an early Su-27 Flanker-B has two hinges attached to the upper side of the parachute container. (*Sergej F. Sergejev*)



(*Above*) The Su-27 Flanker-B "Blue 09" is based at Savasleika, Russia, and belongs to the Combat Employment and Flight Personnel Retraining Center. The St. George emblem on the fin is a typical feature of Savasleika-based Su-27s. (*G.F. Petrov*)

(*Right*) The Su-27 "Red 03" belongs to the 941 Istrebitel'nyi Aviapolk (941st Fighter Aviation Regiment.) The logo is only applied to the starboard tail fin because the Sukhoi OKB logo was applied on the port tail fin at the factory. (*Andrej Zinchuk*)

(*Below*) With the collapse of the Soviet Union, many fighter aviation regiments started to paint unit insignias or individual drawings on their aircraft. This Su-27 has a tiger head on the tail fin as well as a small Russian flag on the rudder. (*G.F. Petrov*)

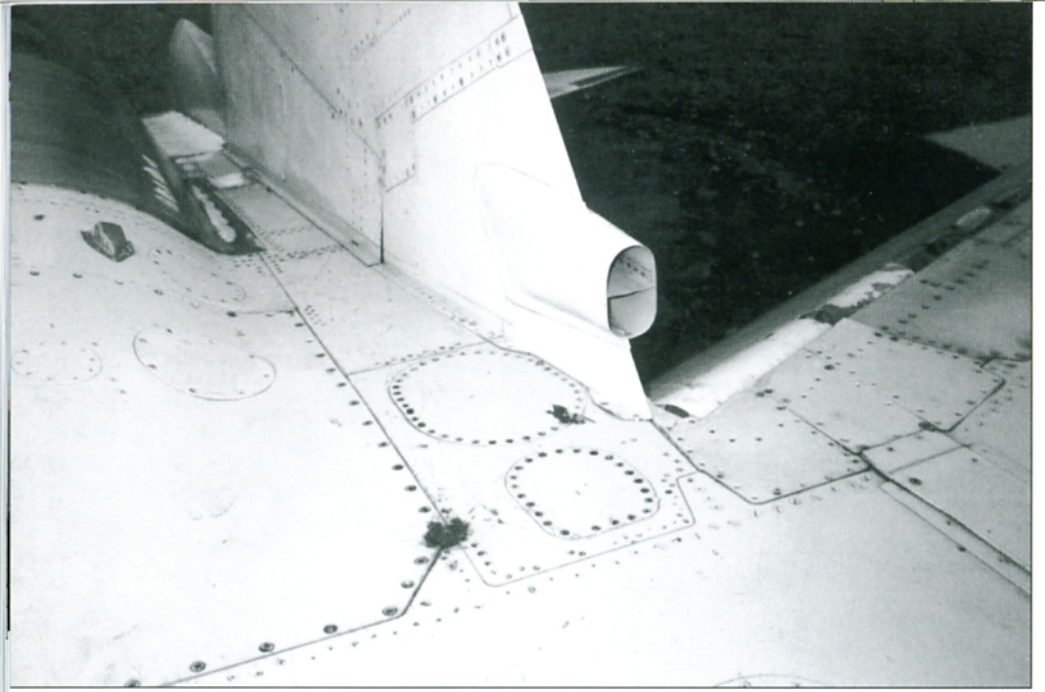


The starboard fin has three radar warning antennas. Above and to the left of the star is a fairing for the SO-69 aircraft responder. The port fin does not have an aircraft responder. A static discharger is on the rudder. The Radome Green fairing houses aerial fairing for the R-800 and R-864 radios.

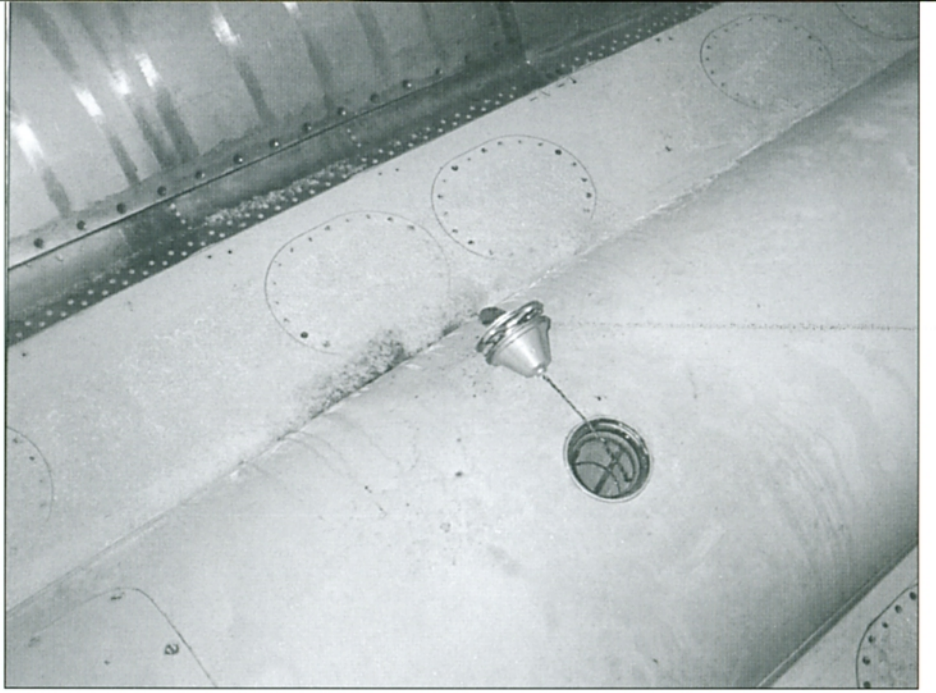
A ventral fin is mounted on all Su-27 Flanker-Bs as well as all Su-27UB Flanker-Cs. This is in contrast to the MiG-29 Fulcrum, where only the first production aircraft received a ventral fin. The majority of MiG-29s were built without a ventral fin.

The port fin tip of an Su-27 Flanker-B has an A-317 ILS aerial on the top. Below that is an ECM antenna and the tail navigation light. The fairing to the left of the position light belongs to the radar homing and warning system.

The port tailplane has three static dischargers mounted on the rear edge. Above the tailplane is the tailplane hinge fairing, covering the tailplane hydraulic actuator and the tailplane hinge fixing. (*Simon Watson*)



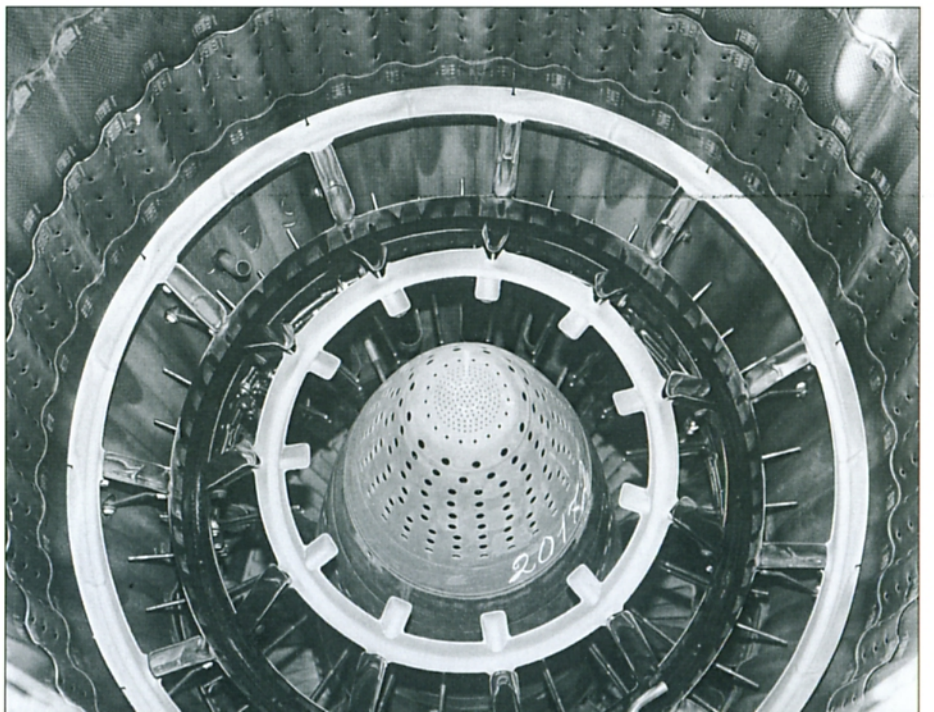
An air intake for the oil cooler is positioned on the root of both fins. The air intake remained unchanged through the production cycle of the Su-27 Flanker-B and Su-27UB Flanker-C trainer. (*Sergej F. Sergejev*)



The rear fuel tank filler is located on the tail section of the Su-27 Flanker-B. The fuel tank fill services tank No. 3, the rear fuselage fuel tank, with a capacity of just more than 356 gallons (1,350 liters). The fuel tank filler on the rear fuselage was also used to drain the tanks. (*Sergej F. Sergejev*)

The variable-area afterburner nozzle of an early Su-27 Flanker-B remained unchanged through the production cycle of the Flanker-B and the Flanker-C trainer. The Su-27 Flanker-B is powered by two Lyulka AL-31 F engines.

The nozzle and reheat chamber of the Lyulka AL-31 F engine includes a rim of contoured flaps hinged at the rear of the afterburner pipe and controlled though the hydraulic cylinders. The powerplant is convergent-divergent. (*Marcus Fülber*)



(*Left*) The final style of the Ukrainian national marking is on the tail fin of this early-production Su-27 Flanker-B. The Yellow trident is painted against a Blue background. The national marking is outlined in White. (*Sergej F. Sergejev*)

(*Above*) The early-production Su-27 Flanker-B "Red 52" carried the early style Ukrainian national marking when the country became independent from the Soviet Union. The Yellow trident was painted on a Blue disc. "Red 52" still has the original Soviet Air Force camouflage. Most Ukrainian Flankers have a distinctive splinter camouflage scheme. (*Aleksey Krasnov*)

(*Below*) The Poltava-based Su-27 "Red 50" has the early-style Ukrainian national marking outlined in White. Outlined Ukrainian national markings are rarely seen on Su-27s. (*Aleksey Krasnov*)

Sukhoi OKB's trainer demonstrator Su-27UB "Blue 389" flies over North America en route to the Aerospace America '90 air show in Oklahoma City, Oklahoma. "Blue 389" was formerly T-10U-7, indicating it was the seventh Flanker-C trainer built. "Blue 389" previously carried the tactical number "Blue 07." The Flanker-C has a much higher instructor's canopy, providing an excellent forward view. The Su-27UB trainer has a larger gun blast shield than the Su-27 Flanker-B. In contrast to the Sukhoi OKB trainer demonstrator, the standard-production Su-27UB lacks the Sukhoi logo on the starboard tail fin. The logo is applied only to the port fin. The Sukhoi OKB logo on "Blue 389" is a different shape than those on the standard-production Flanker-Bs and Flanker-Cs. (*USAF*)

The Su-30 "Blue 51" belongs to the Combat Employment and Flight Personnel Retraining Center at Savasleika. The St. George emblem on the fin is typical of Savasleika-based Su-27s. The White, Blue, and Red Russian banner is on both sides of the dorsal spine and the tail. Many Russian fighters were painted with the Russian flag after the breakup of the Soviet Union. (*G.F. Petrov*)

The Su-27UB Flanker-C "Red 50" shares Kilp-Yavr airfield in Murmansk with single-seat Su-27 Flanker-B fighters. The tactical numbers being above the national marking on the tail fin is typical for Flanker trainers. The two Su-27s at the top left are early-production Flankers, as the Green radomes and tail fins denote. Standard production Su-27s have White radomes and tail fins. (*Andrej Zinchuk*)

The first Su-27 trainer prototype, T-10 UB-1 "Blue 01," has modified fin tips. The original fin tips of the T-10 UB-1 were not cropped and were painted Radome Green. The prototype still has the anti-flutter weights that were omitted from standard-production Su-27UB Flanker-Cs. The T-10 UB-1 has a small gun blast shield mounted around the GSh-301 30 mm cannon and lacks the small air vents behind the cannon. All production Flanker-Cs are equipped with a larger gun blast panel. All Su-27 trainer prototypes are equipped with the early tail sting. (*Sukhoi OKB*)

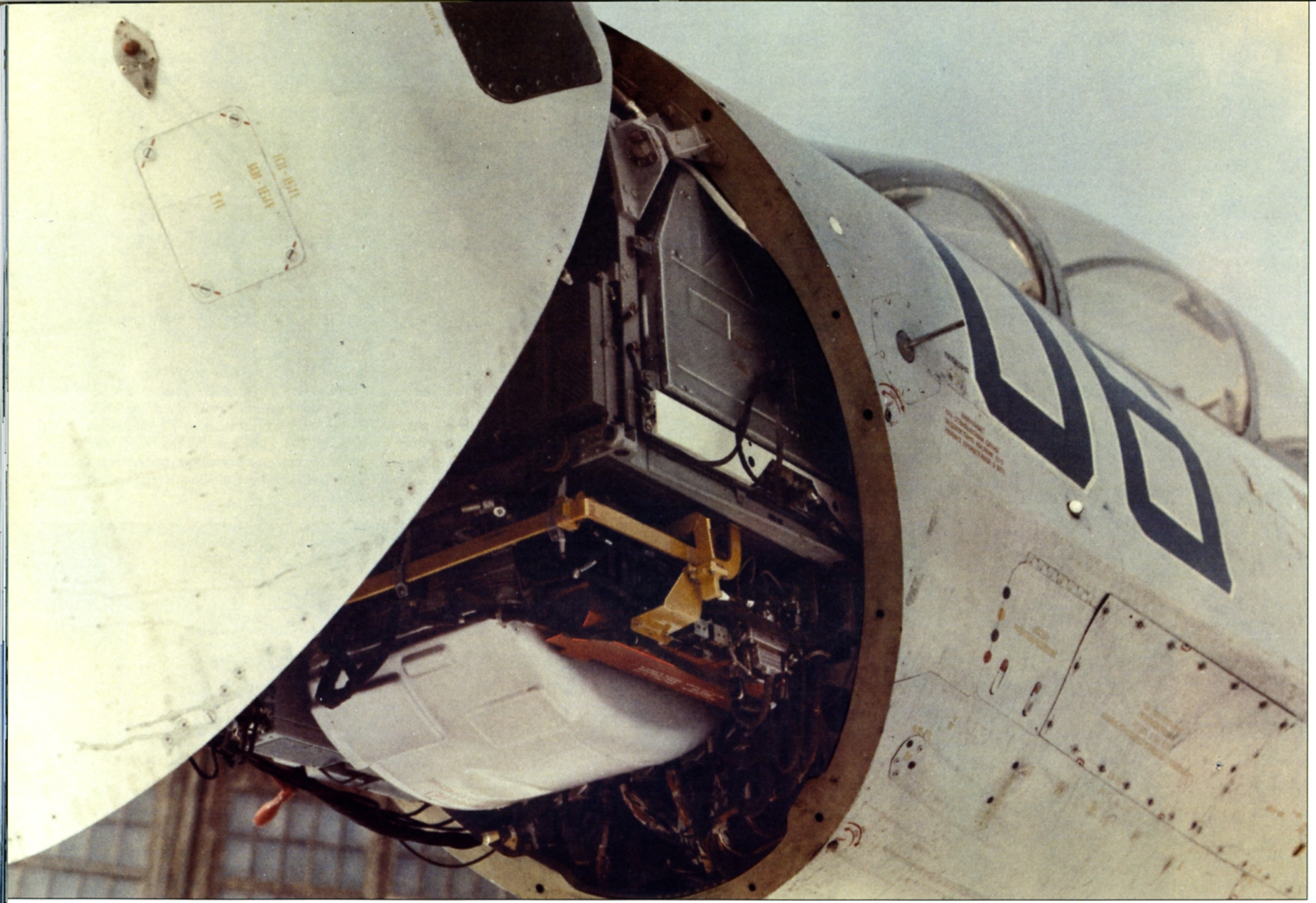
The Su-27UB "Blue 68" is part of the Ukrainian Air Force. In contrast to the T-10 UB-1 prototype, the production Su-27UB has a considerably larger gun blast shield with small air vents behind the GSh-301 30 mm cannon. The blast shield was not painted. Below the ADF omnidirectional aerial on the dorsal spine are two avionics-cooling air vents that were not on the T-10 UB-1 prototype. Standard-production Su-27UBs have two ECM antennas on the wing leading-edge root extension. All production Su-27UB Flanker-Cs are equipped with revised tail stings with box fairings housing ECM antennas and 54 chaff/flares. (*Marcus Fülber*)

The first Su-27 trainer prototype T-10 UB-1 is shown in its original configuration. At the beginning of the flight test envelope, the first Su-27 trainer lacked the OLS-27 infrared search track sensor mounted centerline in front of the canopy frame. The T-10 UB-1 adopted the horizontal tail configuration from the very-early-production Su-27 Flanker-Bs. No pylons were carried on the wing or the fuselage. Eventually, the original Radome Green tail fins were exchanged for White cropped tail fins, which became standard on the production Su-27UB Flanker-Cs. (*Sukhoi OKB*)

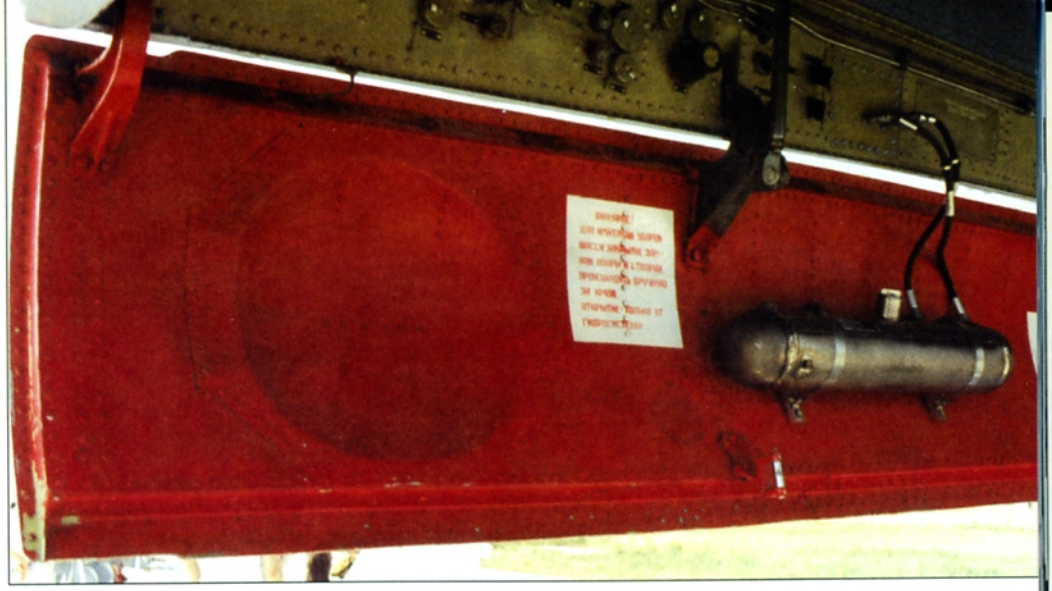
The Su-27UB "Blue 20" is a standard production Flanker-C. All production trainers are equipped with an OLS-27 infrared search track sensor mounted centerline in front of the canopy frame. In contrast to the T-10 UB-1 trainer prototype that lacked a mudguard, all Su-27UBs are equipped with the late-production mudguard on the KN-27 nose wheel. All Soviet Su-27UB trainers have the tactical number painted above the national marking, while the Su-27 Flanker-Bs have the tactical number below the national marking. The Sukhoi logo is painted on the port tail fin only. (*A.A. Zirnov*)

(*Left*) Su-27UBs have an enlarged gun blast shield mounted around the single GSh-301 30 mm cannon. All production Su-27UB trainers have two avionics-cooling air vents mounted below the ADF omnidirectional aerial. These two avionics-cooling air vents are not included on single-seat Su-27 Flanker-Bs. The badge on the gun blast shield belongs to the organization that hired this Su-27 for passenger flights. (*Robert Schranz*)

(*Below*) The Su-27UB "Blue 19" belongs to the Russkiye Vityazi (Russian Knights). The Demonstration Team of the Russian Air Force operates specially modified Flanker-Cs. Most of the Su-27UBs allocated to the team have the heavy titanium gun blast shields of the standard production Flanker-Cs exchanged for a smaller gun blast panel, such as on "Blue 19." Some of the small air vents mounted behind the GSh-301 30 mm cannon on standard Flanker-Cs were omitted from the Russkiye Vityazi Su-27UBs. Most unusual for Su-27UB trainers, this Flanker-C has only a single White ECM antenna mounted on the wing root extension. All production Su-27UB Flanker-Cs have two ECM antennas on the wing root extensions. All Russian Knight Su-27s carry the Sukhoi logo on both sides of the nose. Standard-production Su-27UBs have the Sukhoi logo applied only on the port tail fin. (*A.A. Zirnov*)



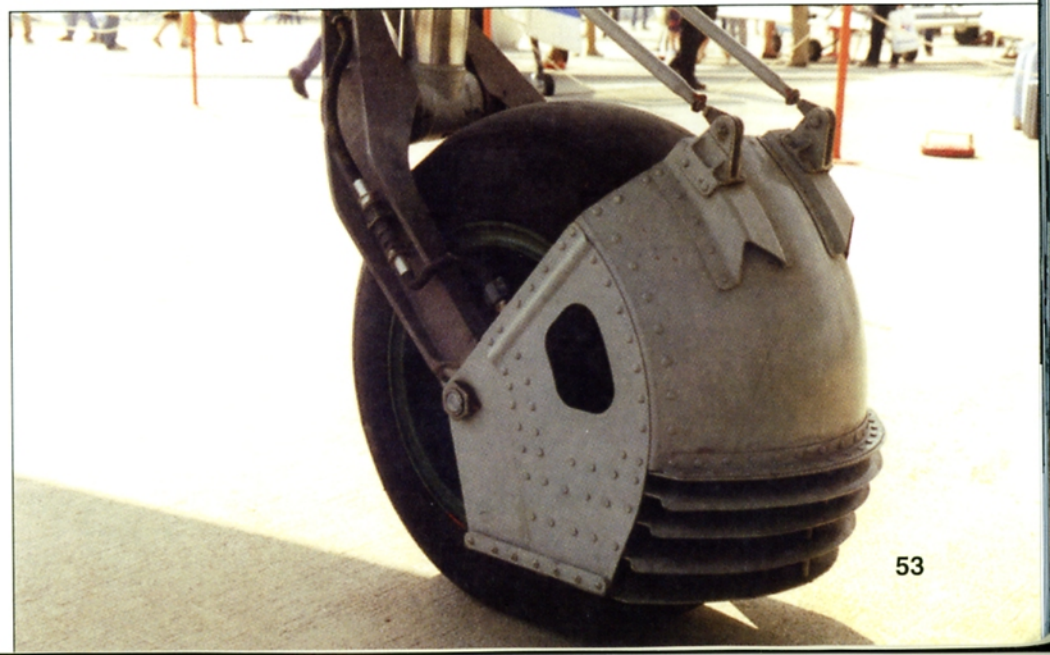
The Su-27 Flanker-B and the Su-27UB Flanker-C trainer use the same type of radar system. The radome on the Su-27 Flanker-B and the Su-27UB is hinged upward, allowing for quick access to the main components of the N-001 Mech (Sword) coherent pulse-Doppler fire control radar. The NATO designation for the N-001 is Slot Back 2. The N-001 has a target detection range of almost 50 miles (80 km). The radar can detect aerial targets flying below the Flanker and therefore possesses look down/shoot down capability. With the radome tilted upward, the frame of the radar's single piece unit with the antenna can be moved forward for maintenance and to provide access to the OEPS-27 electro-optical sighting system. (*Sukhoi OKB*)



(*Left*) The Su-27UB has the same fuel capacity as the Su-27 Flanker-B; the armament is also the same. The main difference from the Su-27 single-seater is the instructor's compartment in the raised cockpit and the stretched canopy. The Su-27UB "Blue 09" has a curtain in the student's compartment for blind flying training. Not all Su-27UBs were equipped with such a curtain.

(*Above*) From the beginning of the production cycle, all Su-27UBs had a nose wheel door with a large bulge. A glycol tank is located on the door behind the bulge.

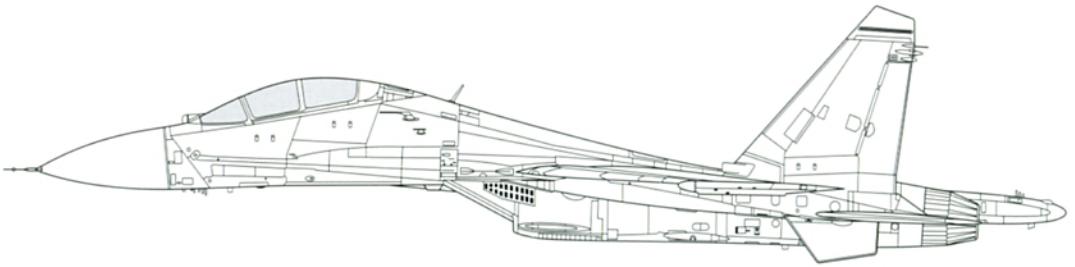
(*Below*) All production Su-27UB Flanker-Cs had the standard-production mudguards with a single aperture on both sides. A difference between the Su-27UB Flanker-C and the Su-27 Flanker-B is the triangle-shaped notch in the lower part of the U-shaped reinforcements on the Flanker-C. Su-27 Flanker-Bs lacked such a notch.

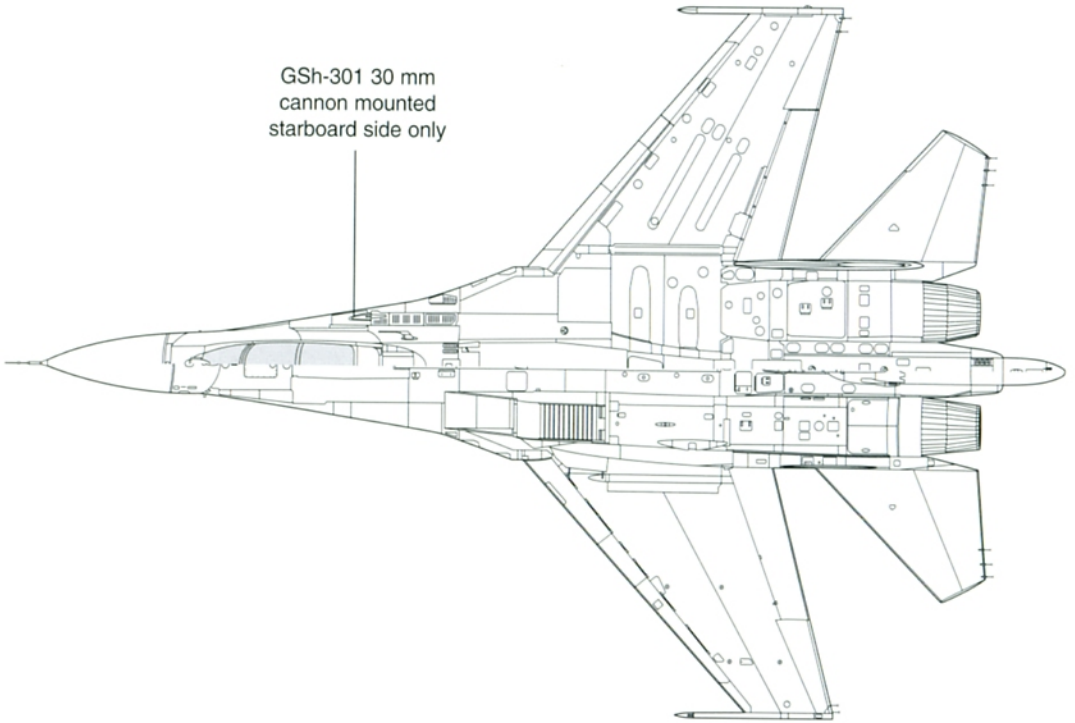


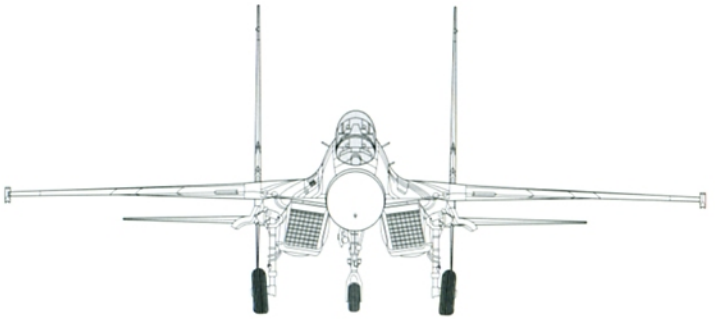
Sukhoi Su-27UB "Flanker-C"

Specifications

Length . . . . . 71 ft. 11.6 in. (21.935 m)
Wingspan . . . . . 48 ft. 2.66 in. (14.698 m)
Height . . . . . 20 ft. 10.27 in. (6.357 m)
Weight, empty . . . . . 38,580 lbs. (17,500 kg)
Maximum take-off weight . . . 67,239 lbs. (22,500 kg)
Engine . . . . . two Lyulka AL-31 F engines
Maximum speed . . . . . mach 2.0
Fuel . . . . . 20,723 lbs. (9,400 kg)
Range . . . . . 1,917 miles (3,000 km)
Rate of climb . . . . . 53,150 ft./min. (16,200 m/min.)
Service ceiling . . . . . 57,414.70 ft. (17,500 m)
Armament . . . . . 1 GSh-301 30 mm cannon; 10 hardpoints







The Su-27UB "Blue 52" belongs to the 641st Guards Fighter Aviation Regiment, 10th Air Defense Army, PVO (Protivo-Vozdushnaya Oborona/National Air Defense Forces), as the polar bear unit marking on the tail fin denotes. The national marking on the tail fin is rather worn on "Blue 52." This Flanker-C has damage on the lower starboard side of its radome. (*Andrej Zinchuk*)

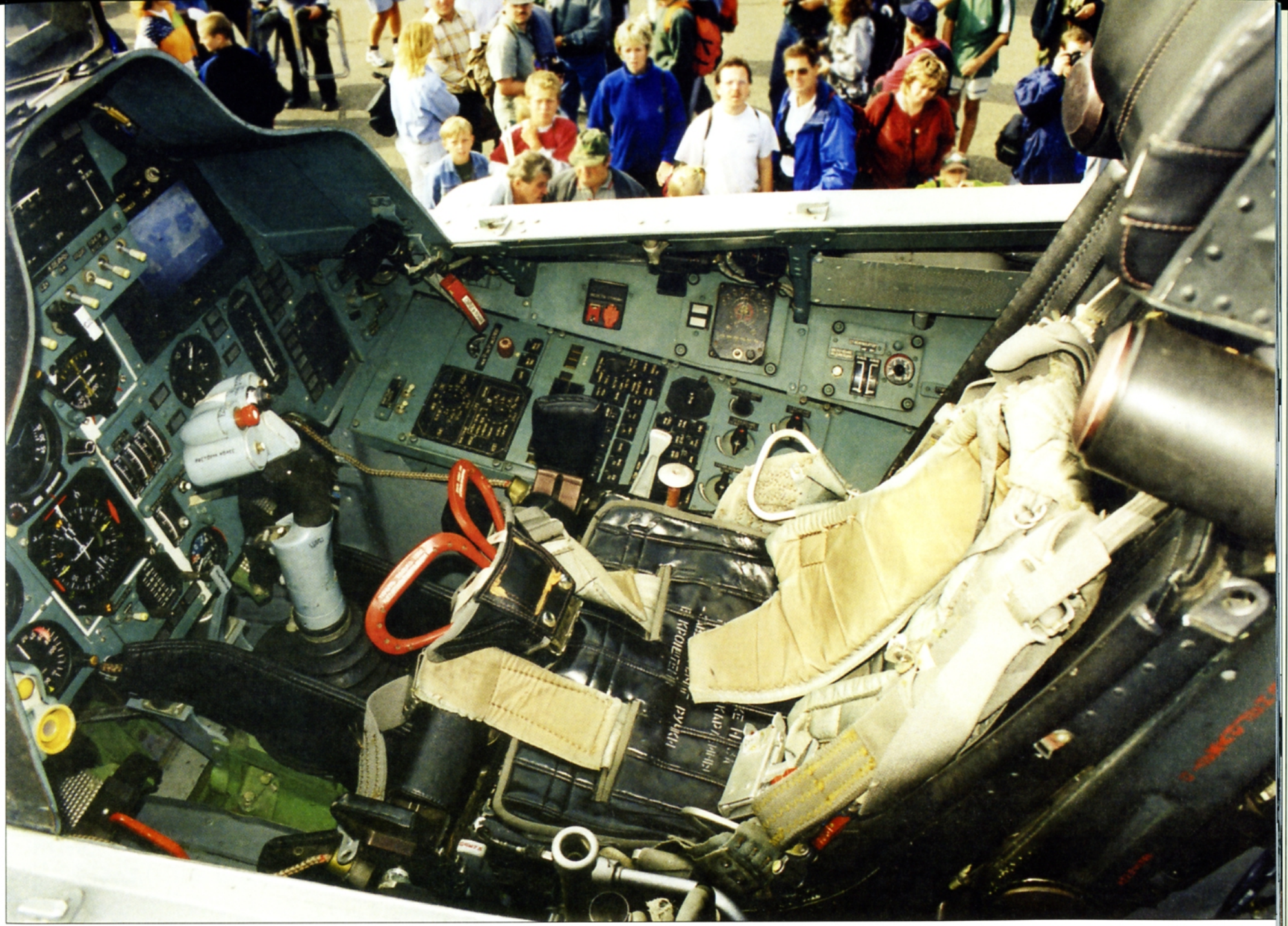
The Su-27UB "Blue 52" of the 641st Guards Fighter Aviation Regiment has the Sukhoi logo on the port tail fin and the unit marking, a polar bear, on the starboard tail fin. The Guards emblem is painted on the port rear cockpit section of the Flanker trainer but not on the starboard. The Cyrillic on the air intake duct reads "Leonid Grekov," in memory of Capt. Leonid Grekov, deputy commander of the 169th Fighter Aviation Regiment, who became a Hero of the Soviet Union on 27 December 1941 during the Great Patriotic War, as the Russians call World War II. (*Andrej Zinchuk*)

The tactical number is repeated on the air intake covering of Su-27UB "Blue 52" to prevent "borrowing" by ground crews assigned to other Flankers. A Golden Star, the Hero of the Soviet Union token, is painted next to the name "Leonid Grekov." The 14 White stars refer to live shootings. The fairing on the base of the air intake houses the SPO-15 (L-006) Bereza radar homing and warning system. (*Andrej Zinchuk*)

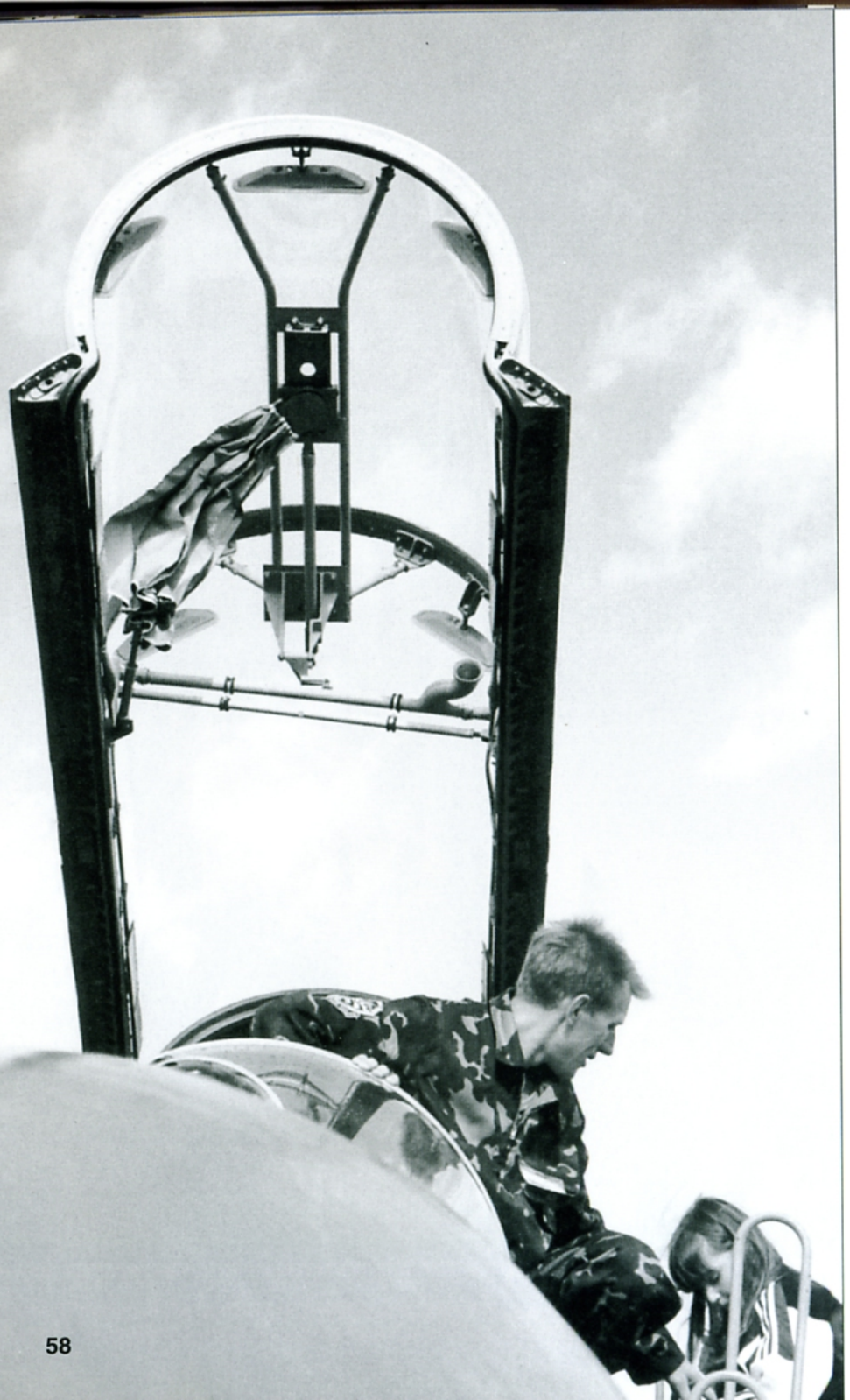
The second Flanker-C trainer prototype, T-10 UB-2, was involved in take-off trials from the T-2 ramp, an aircraft carrier mock-up. The trainer was equipped with an arrestor hook and an in-flight refueling probe. Trials with the modified T-10 UB-2 started in March 1987. The T-10 UB-2 accomplished 12 test flights, including simulated night landings. The T-2 ramp was almost 175 feet long (53.3 meters) and was just over 18 feet tall (5.6 meters). The fairing for the OLS-27 infrared search track sensor feeding the OEPS-27 electro-optical sighting system was offset to the starboard side. T-10 UB-2 had large White and Black calibration markings on the dorsal spine and the tail fin. On 23 June 1987, the T-10 UB-2 flew nonstop 8,351 miles (13,440 km) from the Sukhoi production plant at State Aircraft Factory 126 "Yuri Gagarin" in Komsomolsk-on-Amur to Moscow and back. The flight lasted 15 hours and 42 minutes, and T-10 UB-2 refueled twice. T-10 UB-2 was written off in 1992 after a crash following a generator failure. (*Sukhoi OKB*)

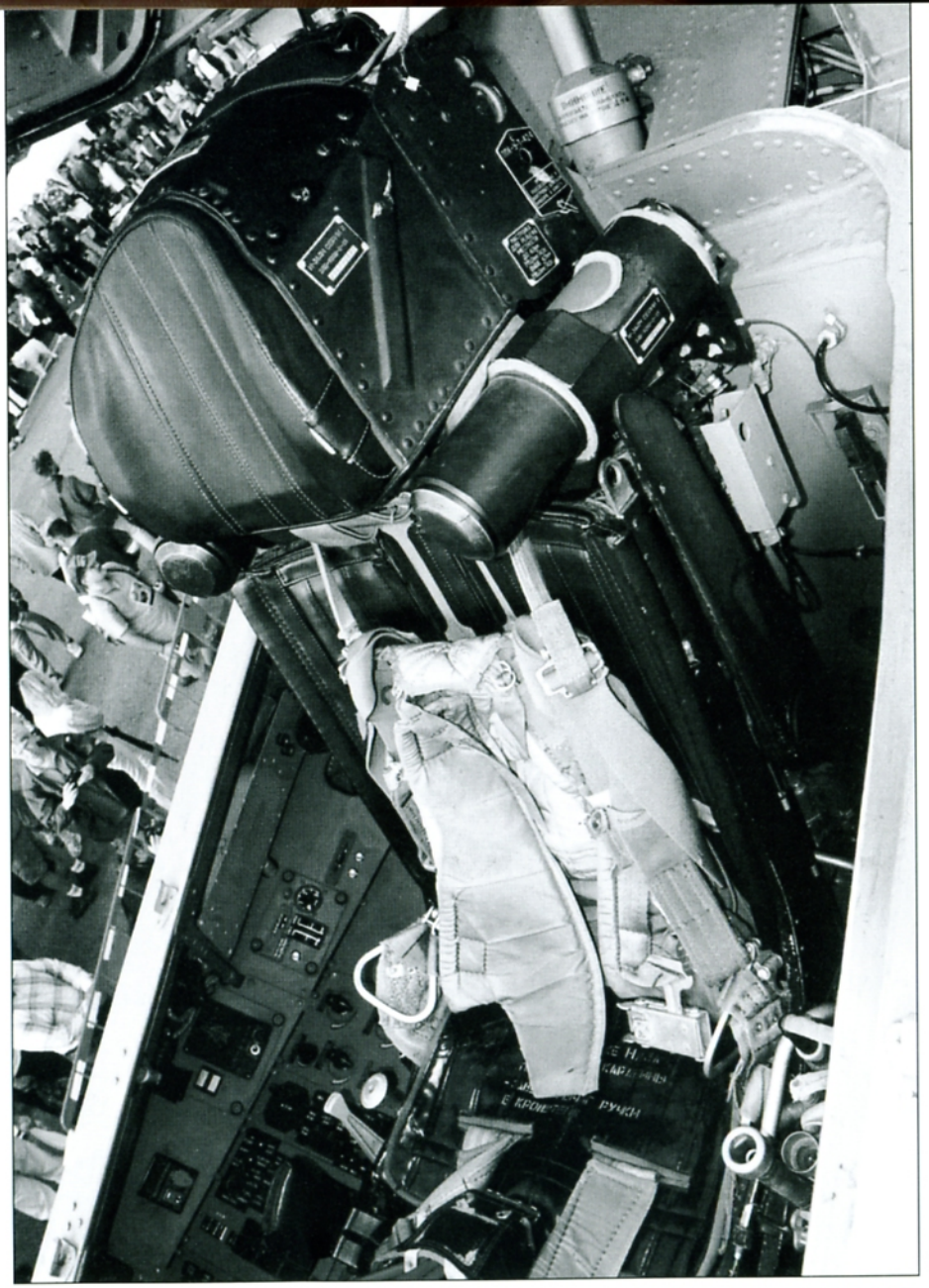
(*Above*) The rear cockpit of the Su-27UB was nearly identical to the front cockpit. The rear instrument panel shroud is enlarged on the rear compartment. The instructor's compartment lacks the head-up display, the head-up display control panel, and the helmet-mounted target designator sensor. (*Jozef And'al*)

(*Below*) The rear instrument panel of an Su-27UB Flanker-B has a different layout for the port control panel than that of the port control panel in the single-seater. (*Jozef And'al*)



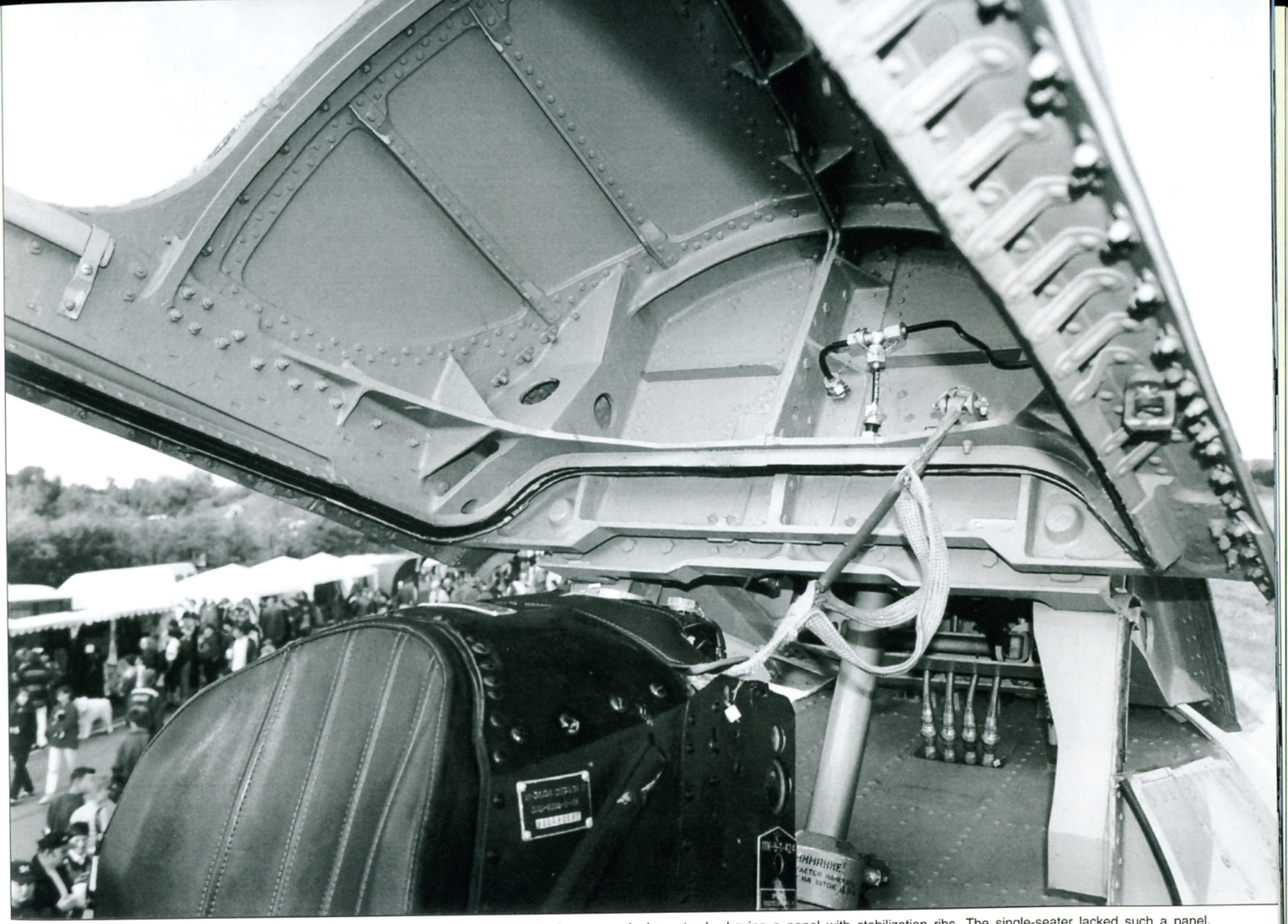
A distinctive feature of the rear cockpit compartment of an Su-27UB is the large instrument panel shroud. The panel with the switches above the instrument panel is only mounted in the Flanker-C's rear instruction compartment. This place is occupied by the head-up display control panel in the student's front compartment. (*Jozef And'al*)





(*Left*) The stretched canopy of an Su-27UB Flanker-C has a suspender for a curtain in the student's compartment. Three additional rear-view mirrors are attached to the rear canopy frame. All single-seat Flanker-Bs lacked the additional mirrors and the suspender for the curtain. (*Jozef And'al*)

(*Above*) Both cockpit compartments of the Su-27UB Flanker-C are equipped with a K-36 DM Series 2 ejection seat. Both ejection seats in the SU-27UB are identical. (*Jozef And'al*)



The canopy hydraulic jack is behind the headrest of the K-36 DM Series 2 ejection seat in the rear cockpit of an SU-27UB Flanker-C. The rear canopy of the trainer variant differs from the single-seater by having a panel with stabilization ribs. The single-seater lacked such a panel. (*Jozef And'al*)

(*Above*) The Su-27UB "Red 19" has its air brake fully deployed. The Su-27UB had a slightly larger air brake than the single-seat Su-27 Flanker-B. A Red covering protects the centerline-mounted OLS-27 infrared search track sensor for the OEPS-27 electro-optical sighting system. The starboard bleed air spill louver on the engine nacelles is also covered. (*Andrej Zinchuk*)

(*Below*) Individual markings on Flankers became more common among fighter aviation regiments after the collapse of the Soviet Union. The Su-27UB "Red 80" of the 941 IAP carries the inscription "Zhemchuzhina Zapolar'a" on the nose. This unit is based at Kilp-Yavr airbase on the Kola Peninsula. This Flanker-C belongs to the PVO (Protivo-Vozdushnaya Oborona/National Air Defense Forces). (*Andrej Zinchuk*)

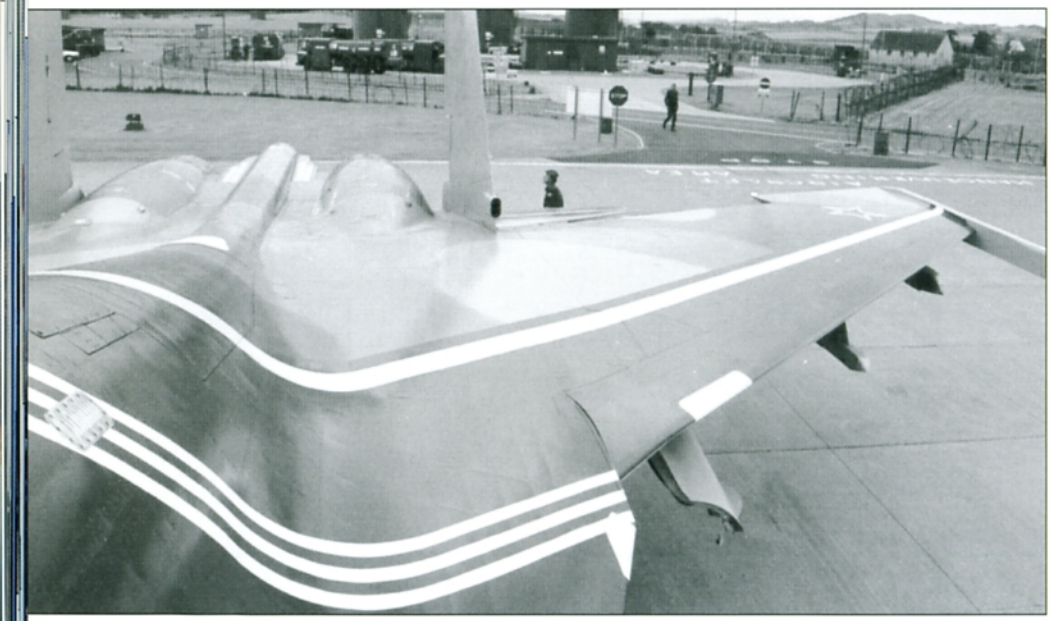
(*Above*) The Su-27UB "Red 80" of the 941 IAP bears the inscription "Zhemchuzhina Zapolar'a" between the student's and instructor's compartments. This fighter aviation regiment operates well inside the Arctic Circle. A ladder is attached to both compartments. The small Black outline of the tactical numbers is nonstandard for Flankers. (*G.F. Petrov*)

The F-15 Eagle and the Su-27 Flanker were both children of the Cold War. The aircraft were not designed to fly peacefully beside each other, but the change in the political climate between West and East made this possible. In contrast to the Su-27, the F-15 Eagle retained its balance weights on its tail fins. Only the early-production Flanker-Bs were equipped with balance weights. The trainer demonstrator of the Sukhoi OKB is escorted by an F-15 Eagle of the 43rd Tactical Fighter Squadron en route to Oklahoma City in 1990. (*USAF*)

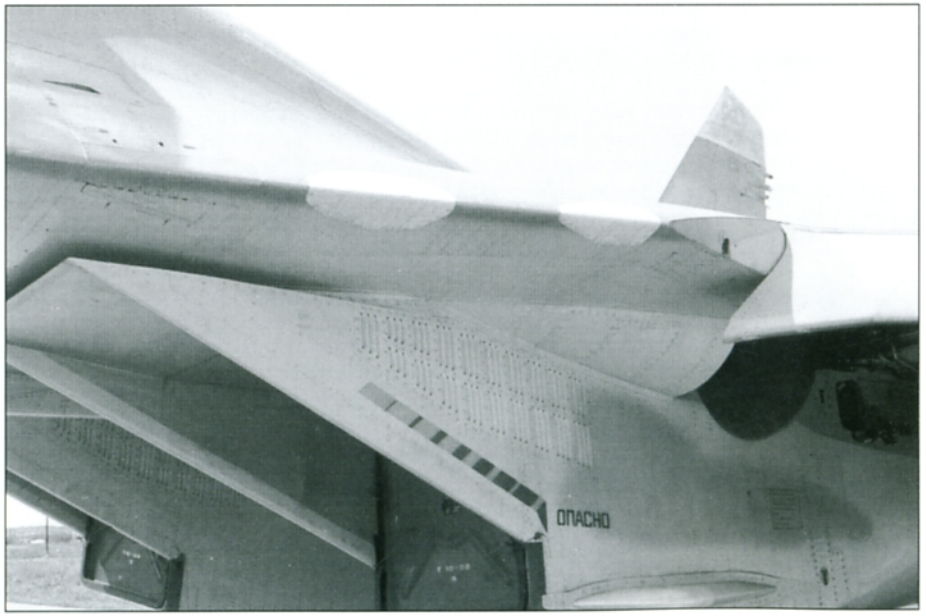
The Su-27UB "Blue 09" was the ninth Flanker-C built and bore the designation T-10 U-9. This Su-27UB was built at State Aircraft Factory 39 at Irkutsk, which became Irkutsk Aircraft Production Organization (IAPO) after the breakup of the Soviet Union. The logo on the blast panel for the GSh-301 30 mm cannon is not a squadron badge but a logo of a company that had chartered this Su-27UB for commercial flights. This Su-27UB is over the Soviet countryside near Moscow. (*Robert Schranz*)

The Su-27 Flanker-B and the Su-27UB Flanker-C trainer carry the same type of weapons. An impressive arsenal is exhibited in front of Su-27UB "Red 61." The front row shows four B-8M1 pods, followed by another four B-13L pods. The B-8M1 and the B-13L pods carry unguided missiles. The KMGU-2 is a small cargo container used to drop small gravity bombs and mines. The KMGU-2 was mounted to the Flanker with the BD-3U universal beam rack. A variety of general-purpose bombs could be also carried by the Su-27, including the FAB-500M62 unguided bombs that are exhibited in front of the R-27 (AA-10 "Alamo") and R-73 (AA-11 "Archer") air-to-air missiles. (*Sukhoi OKB*)

This Su-27UB "Blue 09" clearly shows the antenna configuration of the Flanker trainer. Two ECM antennas are mounted on the leading wing edge. These are usually painted White, but some Su-27UBs have them painted Radome Green. Another antenna is located on the wing leading edge flaps. All Su-27UBs are equipped with this White antenna. A typical feature for the Su-27UB is the enlarged titanium gun blast shield mounted around the GSh-301 30 mm cannon. This Su-27UB was the sixth Flanker trainer built at State Aircraft Factory 39 at Irkutsk. (*A.A. Zirnov*)



A distinctive feature of Su-27UB trainers is the White rectangular antenna on the leading-edge wing flap. Single-seat Su-27 Flankers do not have this antenna on the leading-edge wing flap. The deeper dorsal spine is also typical of the two-seat trainer. (*Simon Watson*)



Most Su-27UB Flanker-Cs are equipped with two ECM antennas on the leading wing edge. Standard-production single-seat Su-27 Flanker-Bs only had the smaller rear antenna when they left the production line.

The Su-27UB "Blue 20" has its two drag chutes fully deployed. The parachutes are Orange and White. The Su-27 Flanker-B and the Su-27UB Flanker-C use the same type of drag chutes. The tactical number above the national marking is a typical feature for Flanker-C trainers. The tail fin area of the Su-27UB is increased by 20 percent compared with the single-seat Su-27 Flanker-B. The air brake on the trainer is also enlarged. The air brake is not fully retracted on "Blue 20." (*A.A. Zirnov*)

With the exception of the two trainer prototypes, T-10 UB-1 and T-10 UB-2, all Su-27UB Flanker-Cs had the late configuration of the tail sting. The revised tail sting had box fairings housing ECM antennas and 54 chaff/flare dispensers held by the APP-50 chaff/flare dispenser system. A three-pole IFF antenna is on top of the tail sting, and a UHF aerial is underneath.

A distinctive feature of Su-27UB Flanker-Cs is the more rounded parachute door. The single-seat Su-27 Flanker-B has a more conical parachute door. With the exception of the first three Su-27UB prototypes, all Flanker trainers are equipped with this rounded parachute door. No Su-27 Flanker-Bs have a rounded parachute door.

The Su-33 "Red 83" of the 279th KIAP (279 Korabel'ny Istrebitel'nyi Aviapolk/279th Shipboard Fighter Aviation Regiment) rides the elevator of the *Kuznetsov* from the lower hangar to the flight deck. The Su-33 had foldable wings and an all-moving tailplane. (*G.F. Petrov*)

A Russian Navy banner is applied below the rear canopy on Su-33 "Red 76." A small Russian flag is painted on the upper port rudder. The eagle logo on the tail is the insignia of the 1st Squadron of the 279th KIAP. (*G.F. Petrov*)

Su-33s line the deck of the Soviet aircraft carrier *Kuznetsov*. The Su-27K was redesignated Su-33 in 1992. The Su-33s were assigned to the 279th KIAP. The hull of the *Kuznetsov* was laid down as the *Leonid Brezhnev*. It was commissioned as the *Tbilisi*, and after the breakup of the Soviet Union it was rechristened the *Kuznetsov*. The aircraft carrier was allocated to the Russian Northern Fleet on 20 January 1992. (*G.F. Petrov*)

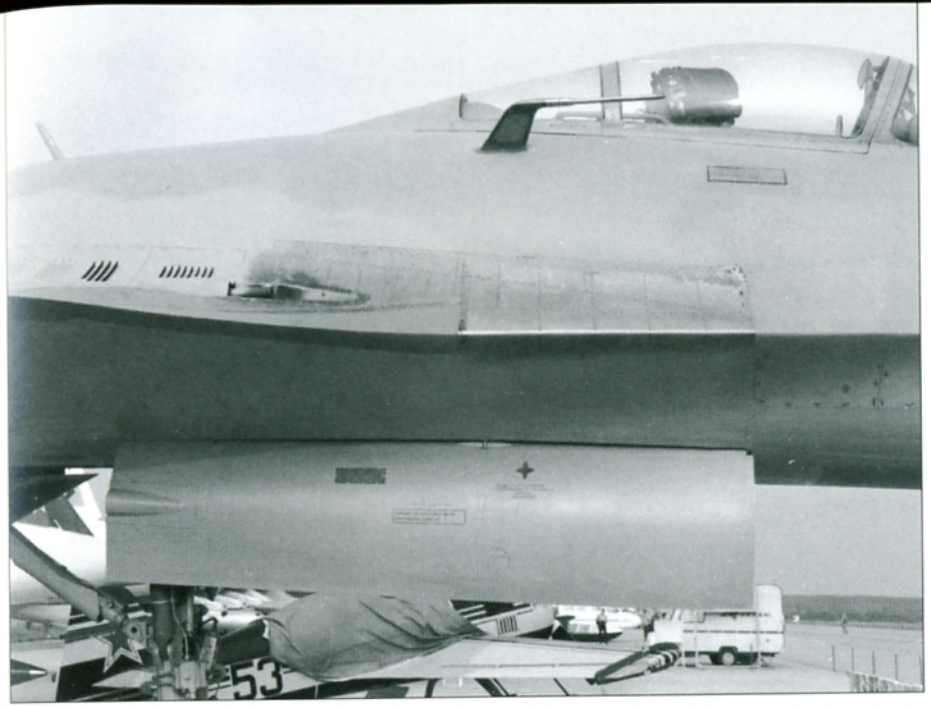
(*Left*) The fifth navalized Flanker Prototype, T-10 K-5, received the tactical number "Blue 69." A typical feature for the Su-27K is the OLS-27K infrared search track sensor offset to the starboard side of the canopy frame. The OLS-27K is an improved system based on the Su-27's OLS-27. The OLS-27K is part of the OEPS-27K electro-optical sight system. The Su-27K became the first production Flanker to be equipped with canards. The Naval Su-27 suffix "K" stands for Korabel'ny (shipboard). (*Sukhoi OKB*)

(*Above*) The T-10 K-5 is armed with R-73 (AA-11 "Archer") air-to-air missiles on the wing tip, an R-27 ET missile on the outboard pylon, and an R-27 R on the inboard wing pylon. The Su-27K had one pylon more per wing than the Su-27 Flanker-B. A Kh-41 Moskit (Mosquito) anti-ship missile is mounted on the centerline fuselage pylon. The radome, the antenna surfaces, and the fin-tip VHF aerial fairing are all painted Gray, which is not standard for Sukhoi fighters. (*Sukhoi OKB*)

(*Below*) The T-10 K-5 prototype still has a full load of weapons, but its wings are folded. One of the distinctive features of the Su-27K is its folding, all-moving horizontal stabilizers. The in-flight refueling probe is extended. The Su-27K (Su-33) has a Resistor shipborne short-range radio navigation and landing system. The OEPS-27 electro-optical sight system of the Su-27 Flanker-B was replaced by the OEPS-27K system with an OLS-27 infrared search track sensor. This system was developed by the Arsenal Production Association in Kiev. (*Sukhoi OKB*)

The Su-27K has a twin nose wheel with a reinforced nose wheel strut. The position of the landing and taxiing lights differs from those on the Flanker-B. A three-color light indicator on the port strut informs the flight controller on deck about the Flanker's position on the glide path and its landing speed.

The Su-27K has a much smaller mudguard than the Su-27 Flanker-B, with no covering above the nose wheel. The twin wheels are smaller in diameter than the single nose wheel of Flanker-Bs and Flanker-Cs.

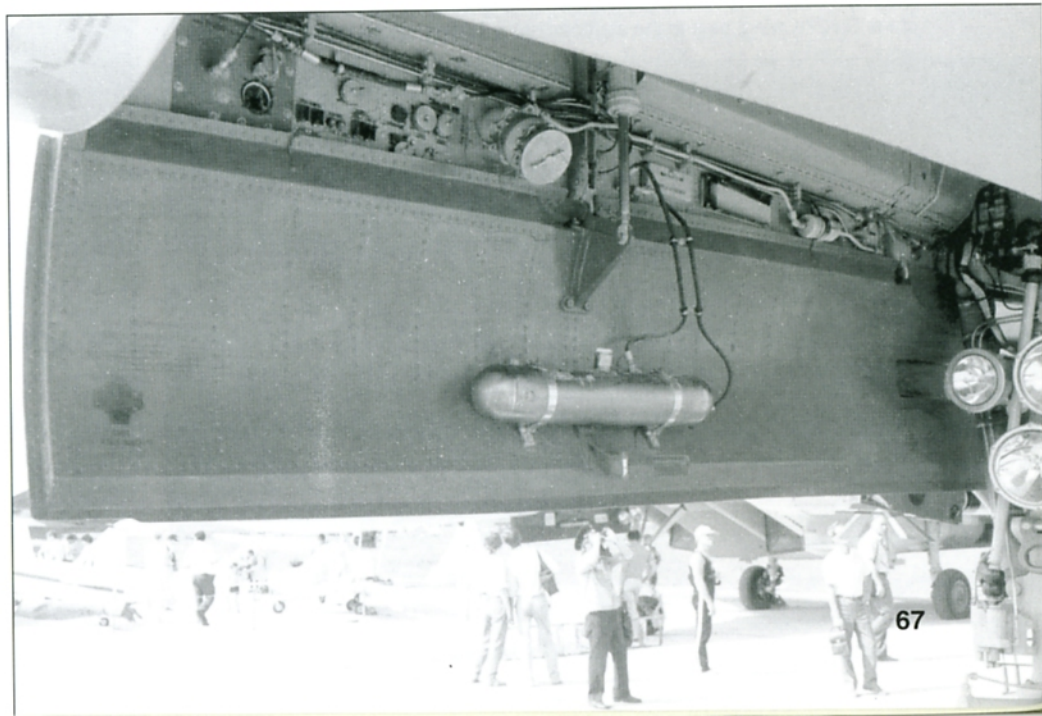


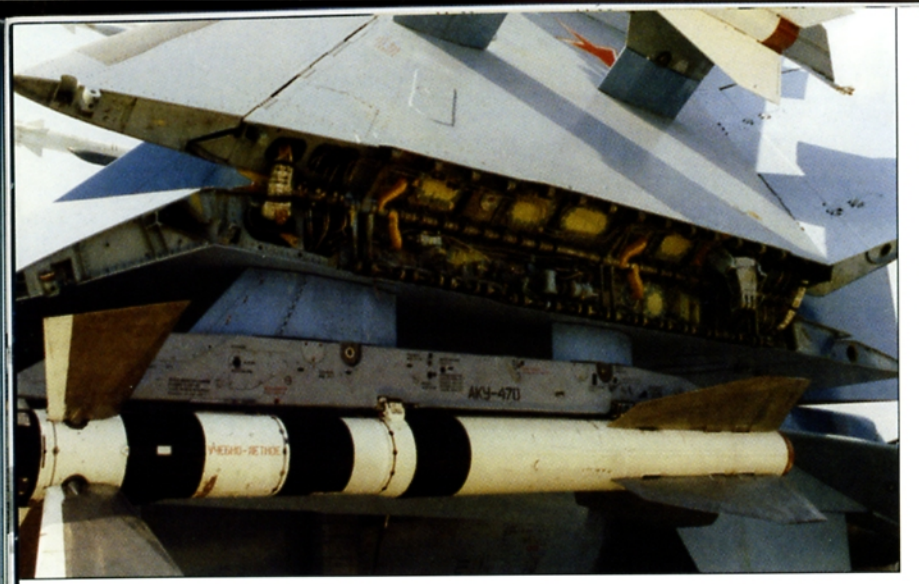
The Su-27K does not have an avionics-cooling air vent below the HF aerial. The fairing on the rear of the nose wheel door is conical on the Su-27K but rectangular on the Su-27 Flanker-B. The Su-27K uses the same K-36 DM Series 2 ejection seat as the Flanker-B, but it is inclined 30 degrees aft.

One of the main differences between an Su-27 Flanker-B and an Su-27K is the introduction of a PVD-7 pitot tube on the leading-edge wing root extension. A retractable light is mounted above the PVD-7 pitot tube. The Su-27K had an updated weapons targeting complex with a look-down mode.

The fifth T-10 K-5 prototype, "Blue 69," has two Red stars painted below the tactical number. The in-flight refueling probe is mounted on port side. Between the in-flight refueling probe and the tactical number is a retractable light. This beam is extended during nighttime in-flight refueling.

Because of the smaller diameter of its twin nose wheels, the Su-27K has a flush inner nose wheel door. The majority of Su-27 Flanker-Bs and all Su-27UB Flanker-Cs have a bulge in the front of the inner nose wheel door. The stainless glycol tank was moved to the side of the nose wheel door.





(*Above*) The port folding mechanism has a main hinge and a second auxiliary hinge. The fuel lines are painted Yellow. The port and starboard wing folding mechanisms are identical. The AKU-470 launching pylon accommodates an R-27 R air-to-air missile.

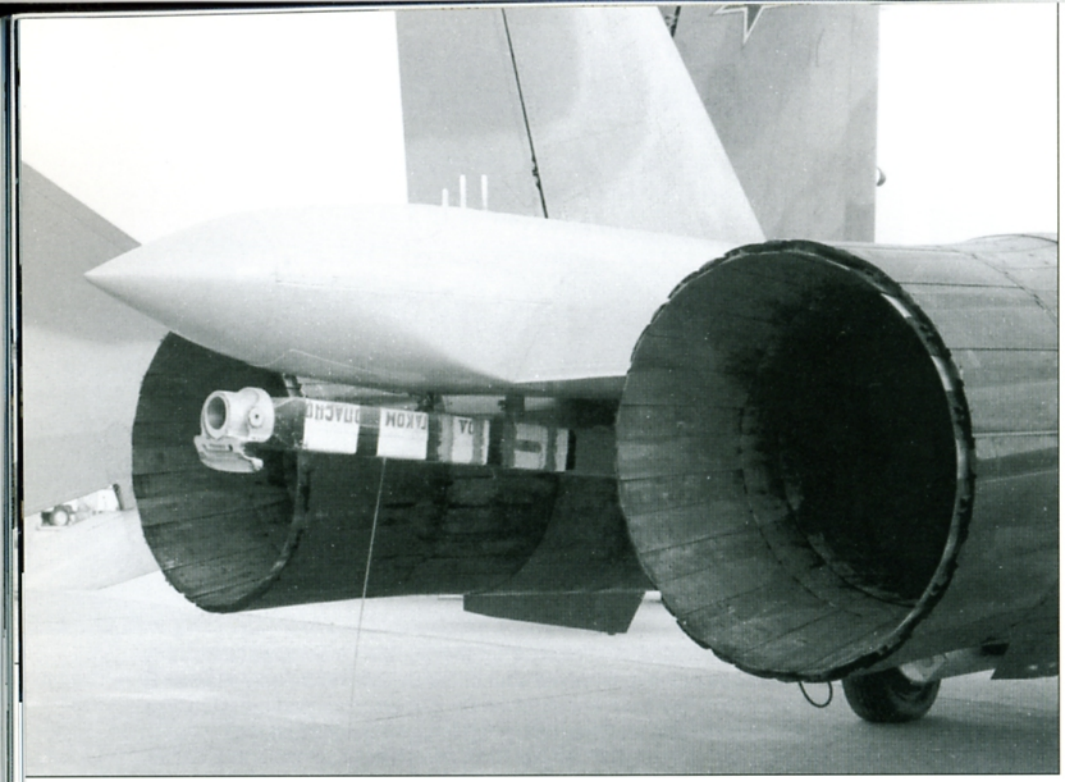
(*Right*) The foldable wings of the Su-27K had an additional pylon. A Gray rectangular antenna is located on the outboard wing leading flap. The main wheel strut was reinforced on the Su-27K, and the fairings for the slanting main pivots were stretched. Folding the fins decreases the wingspan from 48.23 feet (14.7 meters) to 24.28 feet (7.4 meters).

(*Below*) A single AKU-470 launching pylon is mounted on the fixed inboard surfaces of the Su-27K wing, next to the starboard wing folding mechanism of an Su-27K.

(*Left*) The main wheel strut is reinforced on the Su-27K. A tie-down shackle is attached to the base of the main wheel strut of the Su-27K. The Su-27 Flanker-B lacks such an anchor. The main wheels of the Su-27K are increased-pressure tires more resistant to wear and tear, permitting higher gross weight takeoffs.

(*Above*) The Su-27K was the first production Flanker to be equipped with canards. The canards have an area of about 32 square feet (3 square meters). The foreplane's leading-edge sweep angle is 53.5 degrees, with the deflection angle of between +3.5 degrees and -51.5 degrees. The hydraulic actuators to control the canards are installed in the leading-edge root extension.

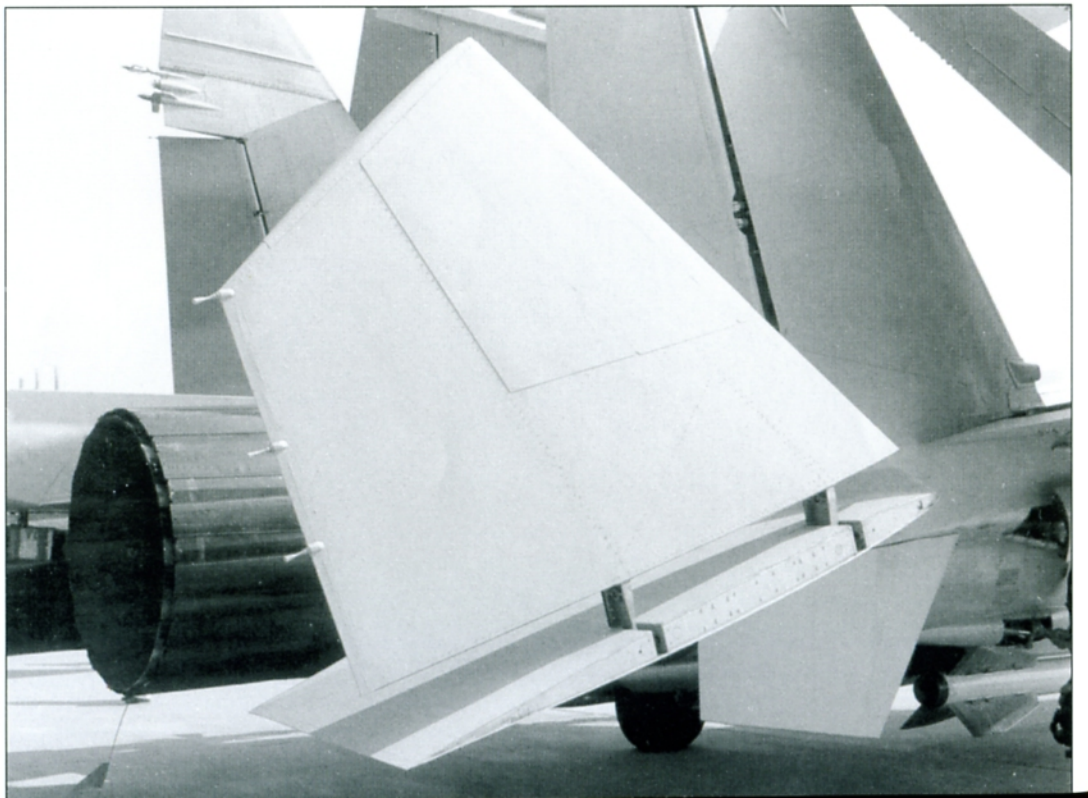
(*Below*) The inboard leading-edge flap of an Su-27K. The navalized Flanker carries R-27 R air-to-air missiles with semiactive radar homers mounted on AKU-470 launching pylons. A rectangular antenna is mounted on the wing's inboard leading-edge flap.



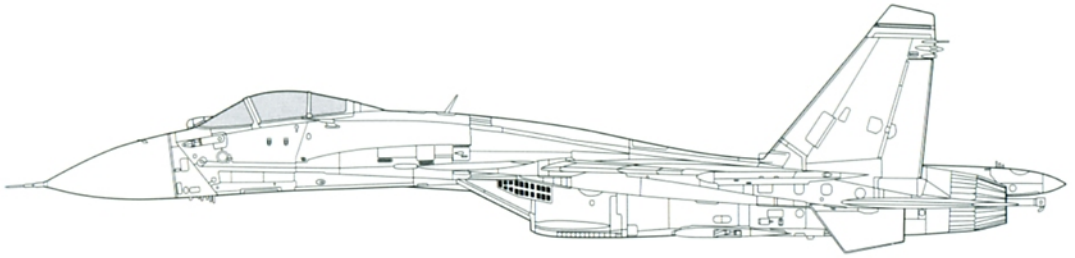
(*Above left*) *The* Su-27K has a considerably shorter tail sting than the Su-27 Flanker-B. The Su-27K does not have the box fairings housing ECM antennas and the APP-50 chaff/flare dispenser system mounted in the tail sting. Instead, the SPO-15 (L-006) Bereza radar homing and warning system is mounted in the tail sting. On the Su-27 Flanker-B, the SPO-15 (L-006) Bereza radar homing and warning system antennas are mounted in fairings at the base of the air intake. The Su-27K has a three-pole IFF antenna mounted on top of the tail sting. The arrestor hook is fully retracted.

(*Above right*) The arrestor hook is deployed on this Su-27K. The arrestor hook is hydraulically operated on the Su-27K. The Su-27K does not have a drag chute container, and the tail sting has been cut to gain space for carrier operations. (*Sukhoi OKB*)

(*Right*) Like the wings, the all-moving horizontal stabilizers of the Su-27K are foldable. Three static dischargers are mounted on the rear edge of the tailplane. The reinforcement panels on the tailplane tips are considerably larger than those on the Su-27 Flanker-B. Two hinges connect the stabilizer folding section with the horizontal tail surface.

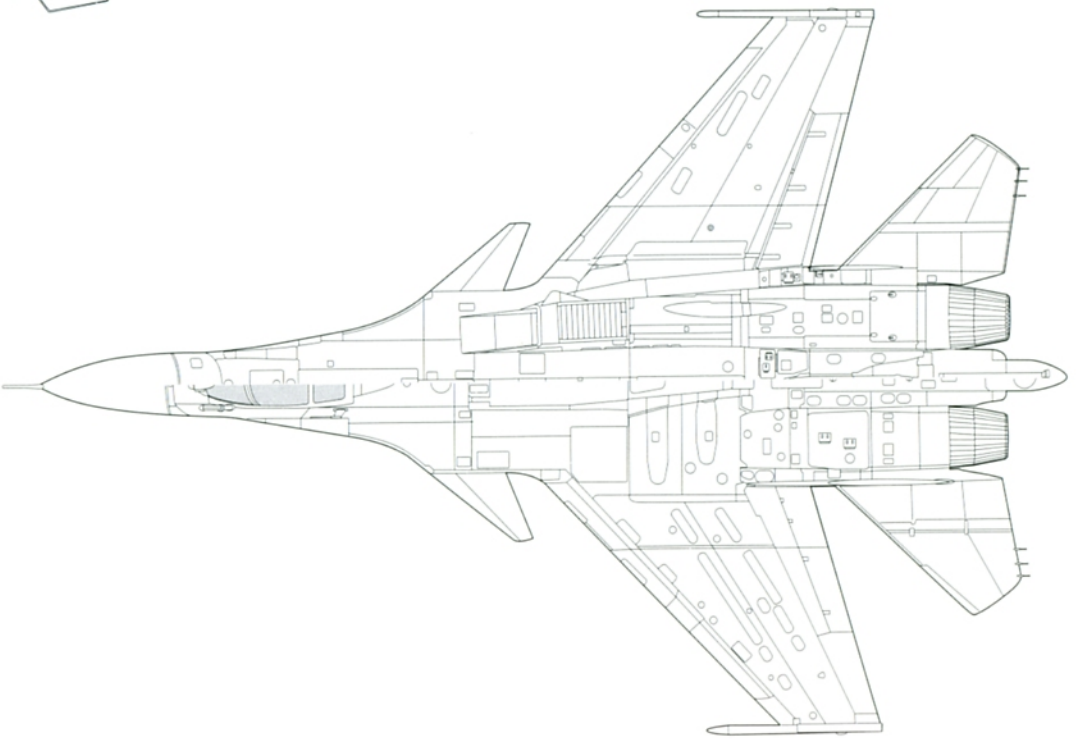


Sukhoi Su-27K (Su-33)

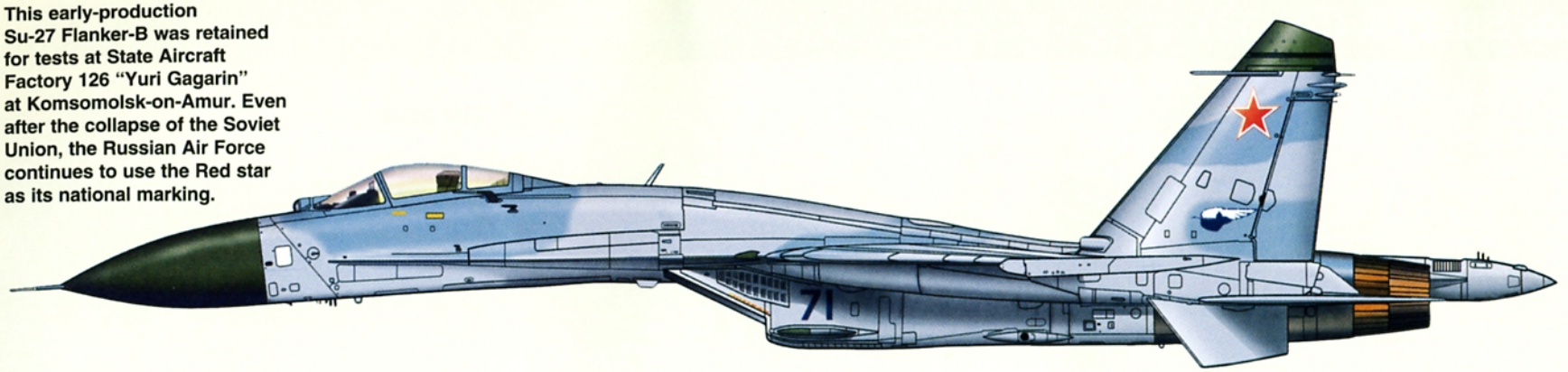


Specifications

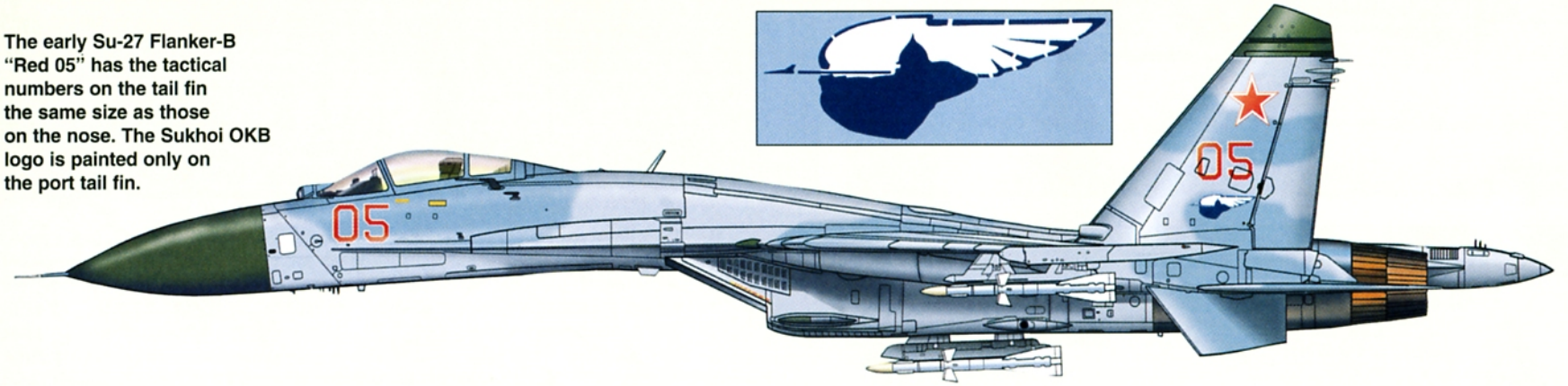
Length	71 ft. 11.6 in. (21.935 m)
Wingspan	48 ft. 2.66 in. (14.698 m); 24 ft. 3.34 in. (7.40 m) folded
Height	19 ft. 5.54 in. (5.932 m)
Weight, empty	35,273 lbs. (16,000 kg)
Maximum take-off weight	72,752.55 lbs. (33,000 kg)
Engine	two Lyulka AL-31 F engines
Maximum speed	mach 2.17
Fuel	20,723 lbs. (9,400 kg)
Range	1,864.11 miles (3,000 km)
Rate of climb	45,275 ft./min. (13,800 m/min.)
Service ceiling	55,774 ft. (17,000 m)
Armament	1 GSh-301 30 mm cannon; 12 hardpoints



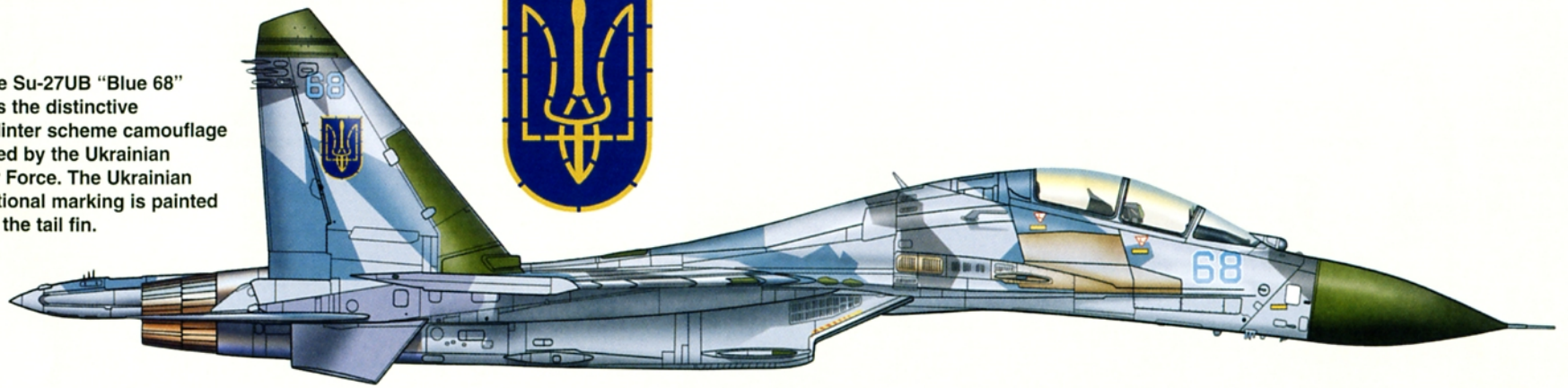
This early-production Su-27 Flanker-B was retained for tests at State Aircraft Factory 126 "Yuri Gagarin" at Komsomolsk-on-Amur. Even after the collapse of the Soviet Union, the Russian Air Force continues to use the Red star as its national marking.

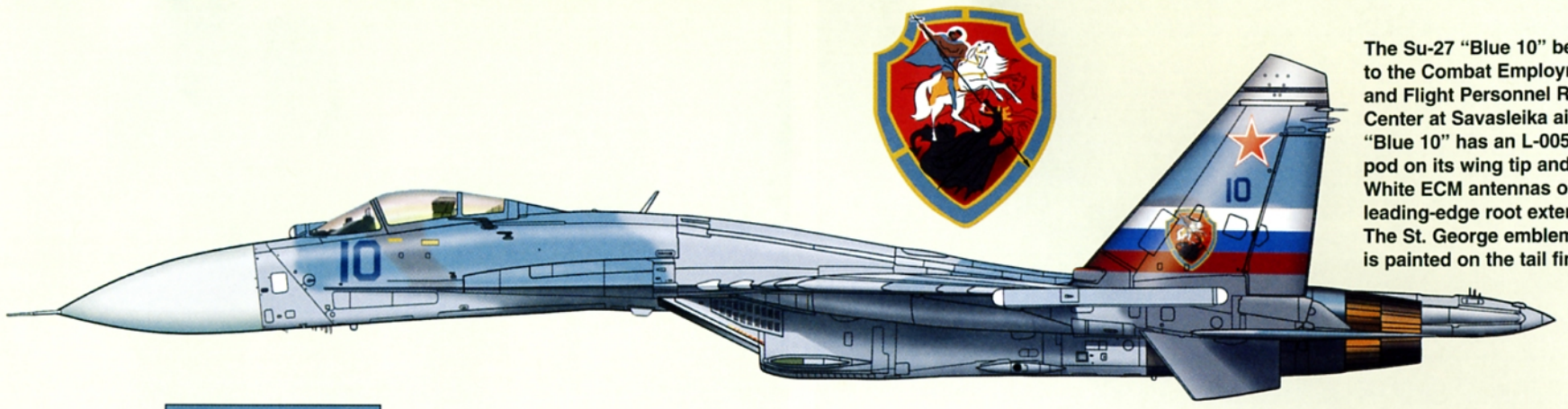


The early Su-27 Flanker-B "Red 05" has the tactical numbers on the tail fin the same size as those on the nose. The Sukhoi OKB logo is painted only on the port tail fin.

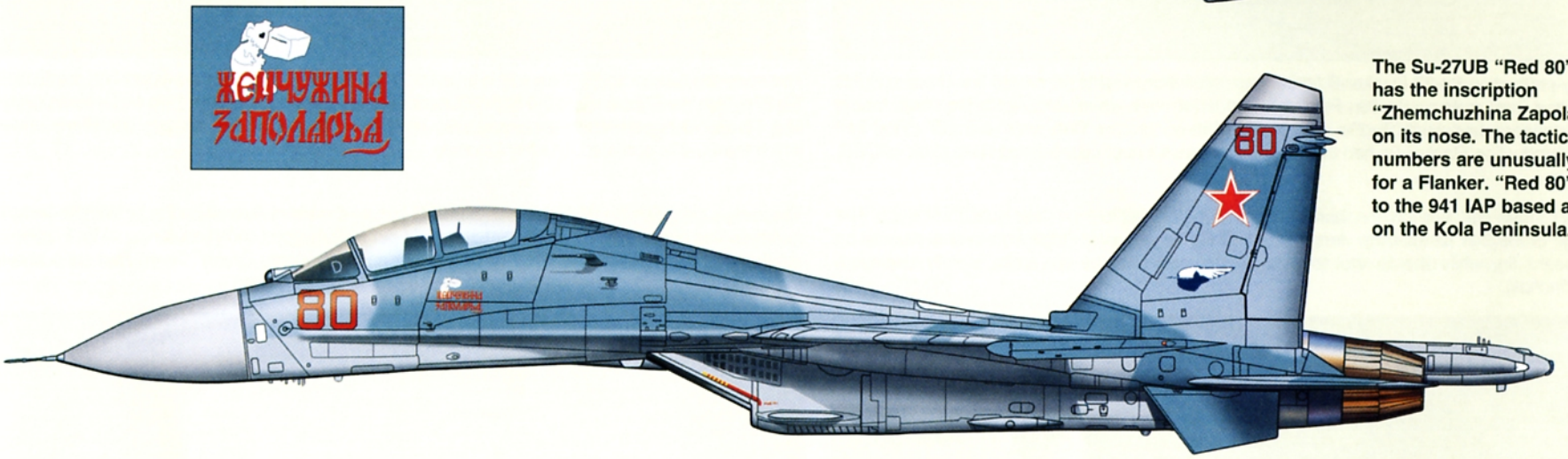


The Su-27UB "Blue 68" has the distinctive splinter scheme camouflage used by the Ukrainian Air Force. The Ukrainian national marking is painted on the tail fin.

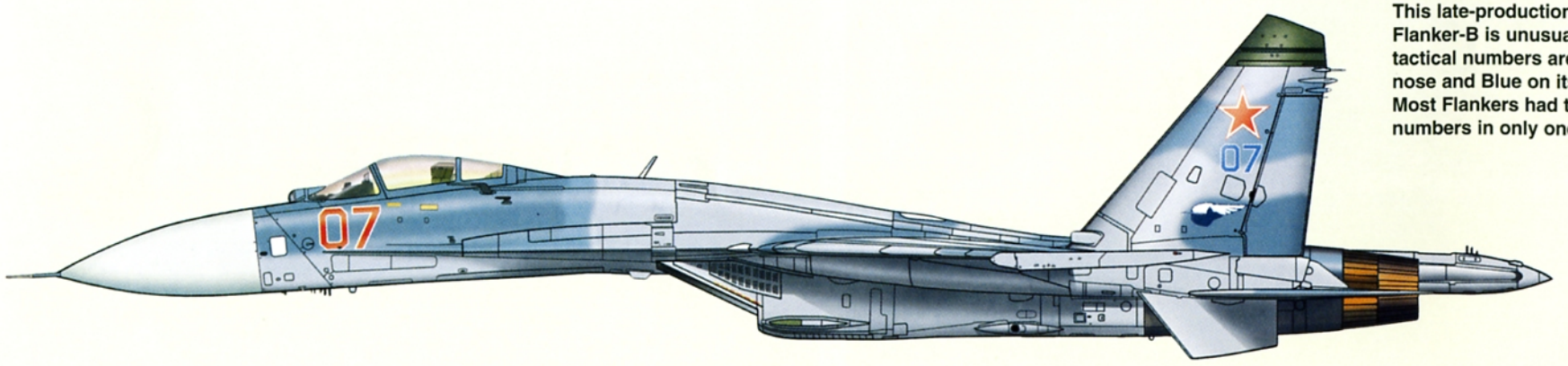




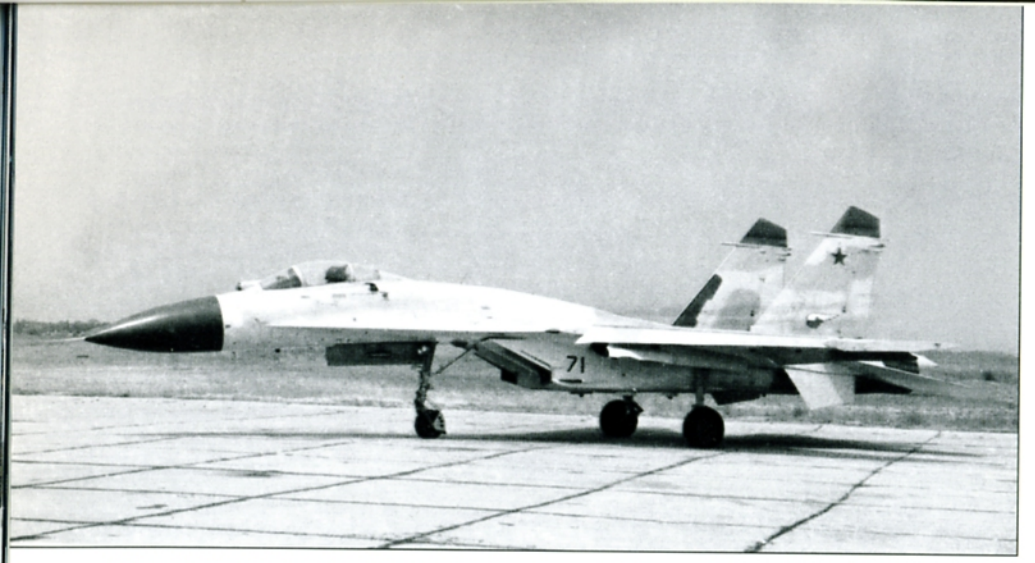
The Su-27 "Blue 10" belongs to the Combat Employment and Flight Personnel Retraining Center at Savasleika airbase. "Blue 10" has an L-005 jamming pod on its wing tip and two White ECM antennas on the wing leading-edge root extension. The St. George emblem is painted on the tail fin.



The Su-27UB "Red 80" has the inscription "Zhemchuzhina Zapolar'a" on its nose. The tactical numbers are unusually dark for a Flanker. "Red 80" belongs to the 941 IAP based at Kilp-Yavr on the Kola Peninsula.



This late-production Su-27 Flanker-B is unusual in that its tactical numbers are Red on its nose and Blue on its tail fin. Most Flankers had tactical numbers in only one color.



This early-production Su-27 Flanker-B fighter has anti-flutter weights on the tail fin. These weights were omitted from main-production Flankers. The inner nose wheel door lacks the bulge that is seen on standard-production Su-27s. The inside of the doors are Gray on this Su-27, "Red 71." Standard-production Flanker-Bs had the inside of the nose wheel door painted Red. (*Sukhoi OKB*)

The early-production Su-27 "Blue 25" is unusual in that it has the revised tail sting of late-production Su-27s. This Su-27 belongs to the 641st Guards Fighter Aviation Regiment, 10th Air Defense Army. The Flanker-B is parked on an unprepared hardstand, illustrating the austere conditions under which the Su-27s operated. (*Andrej Zinchuk*)

The Su-27 "Blue 39" sits on the hardstand at Kilp-Yavr airfield on the Kola Peninsula. The unit badge of the 941 Istrebitel'nyi Aviapolk (941st Fighter Aviation Regiment) is only painted on the starboard fin, while the Sukhoi logo is on the port fin. The air brake is fully deployed. (*Andrej Zinchuk*)

The early-production Su-27 Flanker-B "Blue 24" has an Excellent Aircraft badge behind the tactical number. This badge was put on Soviet aircraft in particularly good condition. Unusual for Flankers, the first part of the radome is Black while the rear part is Radome Green. Seven Red stars above the Excellent Aircraft badge mark drones shot down. (*Marcus Fülber*)

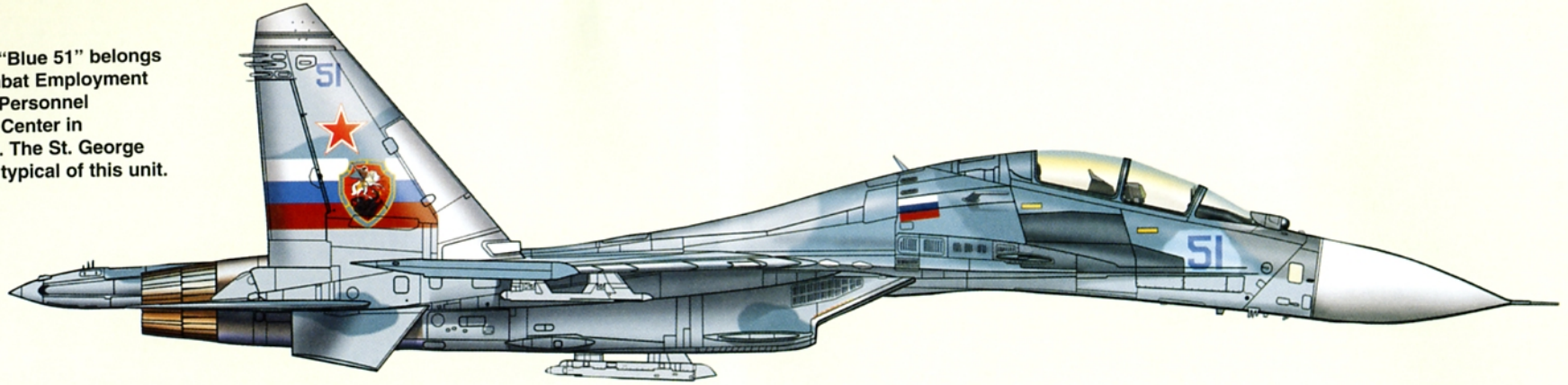
The early-production Su-27 Flanker-B "Red 05" is unusual in that the tactical number on the tail fin is the same size as that on the nose. Standard-production Su-27s have the tactical number on the tail much smaller than on the nose. All Su-27 Flankers have the Sukhoi OKB logo only on the port tail fin. (*Andrej Zinchuk*)

This factory-fresh Su-27 "Blue 41" lacks any pylons on the wings or fuselage. This standard-production Flanker-B was subsequently allocated to the Sukhoi OKB as a flight demonstrator. With the tactical number "Blue 388" applied on the nose, this particular Flanker toured Europe, North America, and Asia during the early 1990s. (*Sukhoi OKB*)

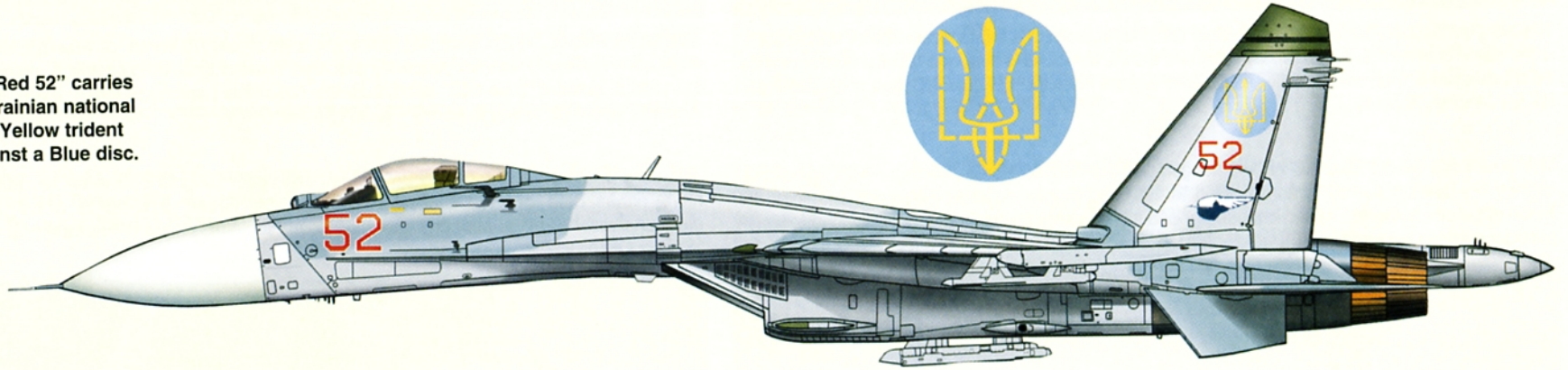
The weathered Su-27 "Blue 02" once belonged to the Soviet Air Force. When the vast communist country broke up, "Blue 02" was allocated to the 62nd Fighter Aviation Regiment, Ukrainian Air Force at Belbek airbase. The tactical number and insignia are of Soviet heritage; only the Ukrainian national marking was added. (*Sergej F. Sergejev*)

The early-production Su-27 "Red 85" carries anti-flutter weights on the tail fin. Most Flanker-Bs have either Blue or Red tactical numbers. The Green radome is a typical feature of early-production Su-27s. Mid- and late-production Flanker-Bs have White radomes. (*Sukhoi OKB*)

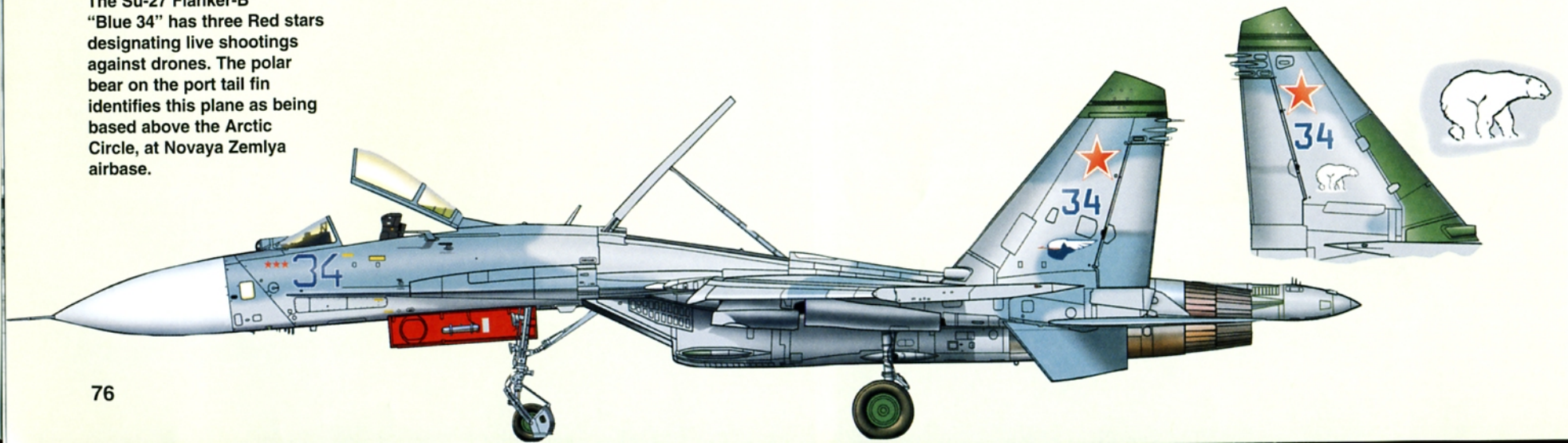
The Su-30 "Blue 51" belongs to the Combat Employment and Flight Personnel Retraining Center in Savasleika. The St. George emblem is typical of this unit.

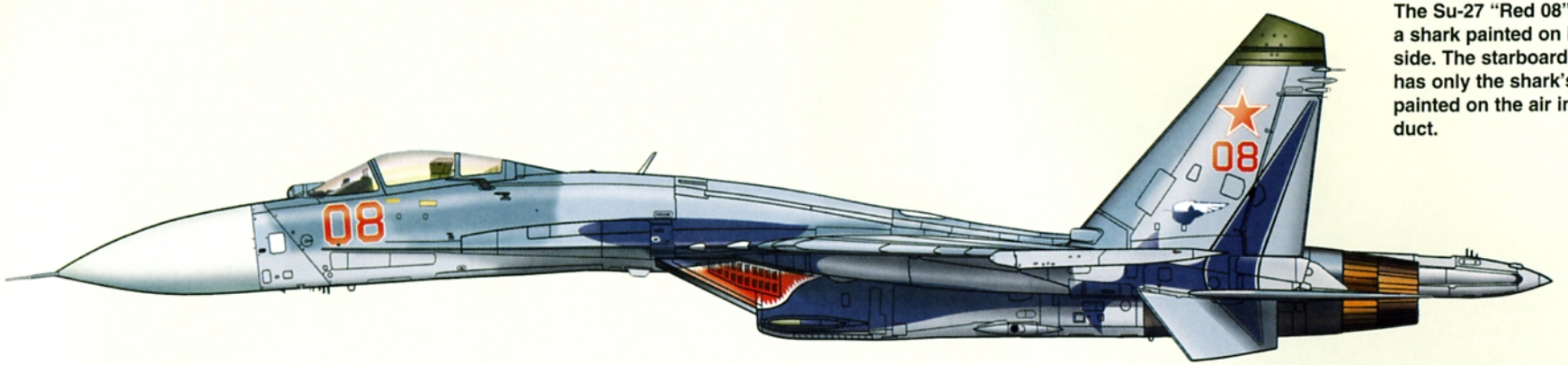


The Su-27 "Red 52" carries the early Ukrainian national markings, a Yellow trident painted against a Blue disc.

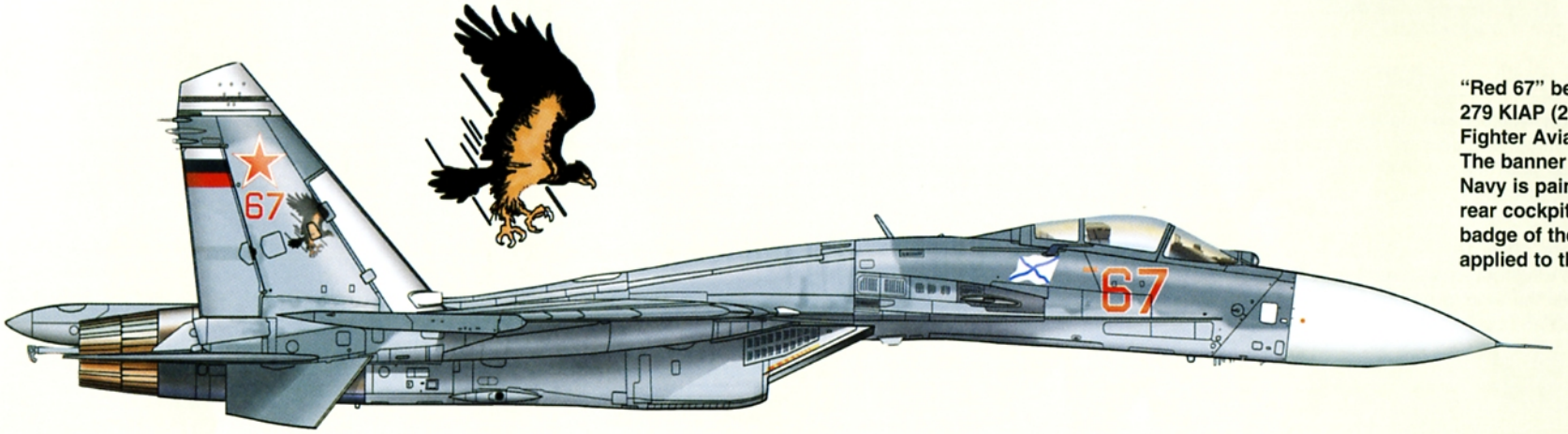


The Su-27 Flanker-B "Blue 34" has three Red stars designating live shootings against drones. The polar bear on the port tail fin identifies this plane as being based above the Arctic Circle, at Novaya Zemlya airbase.

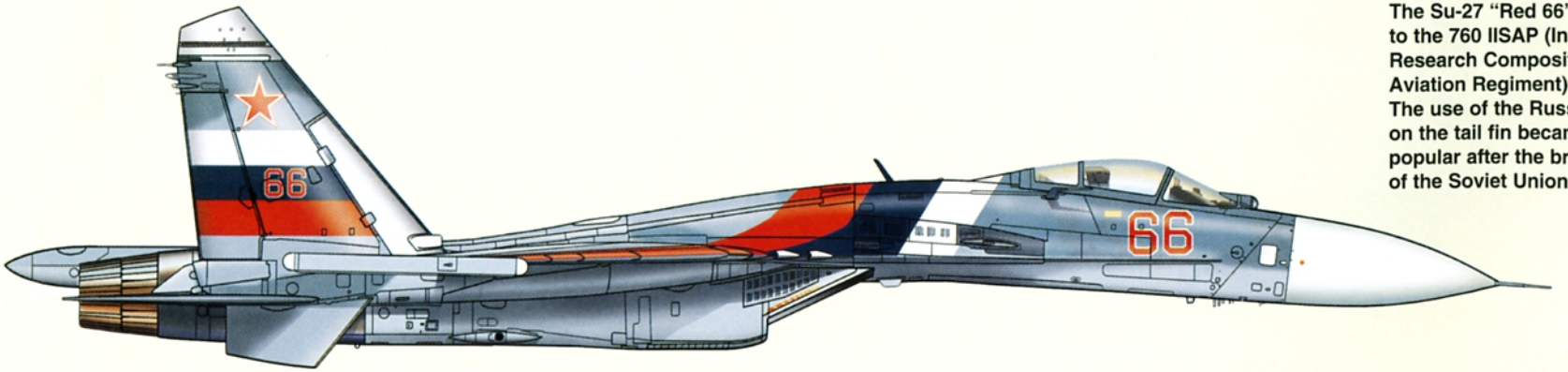




The Su-27 "Red 08" has a shark painted on its port side. The starboard side has only the shark's mouth painted on the air intake duct.



"Red 67" belongs to the 279 KIAP (279th Shipboard Fighter Aviation Regiment). The banner of the Soviet Navy is painted under the rear cockpit. The regimental badge of the 279 KIAP is applied to the tail fin.



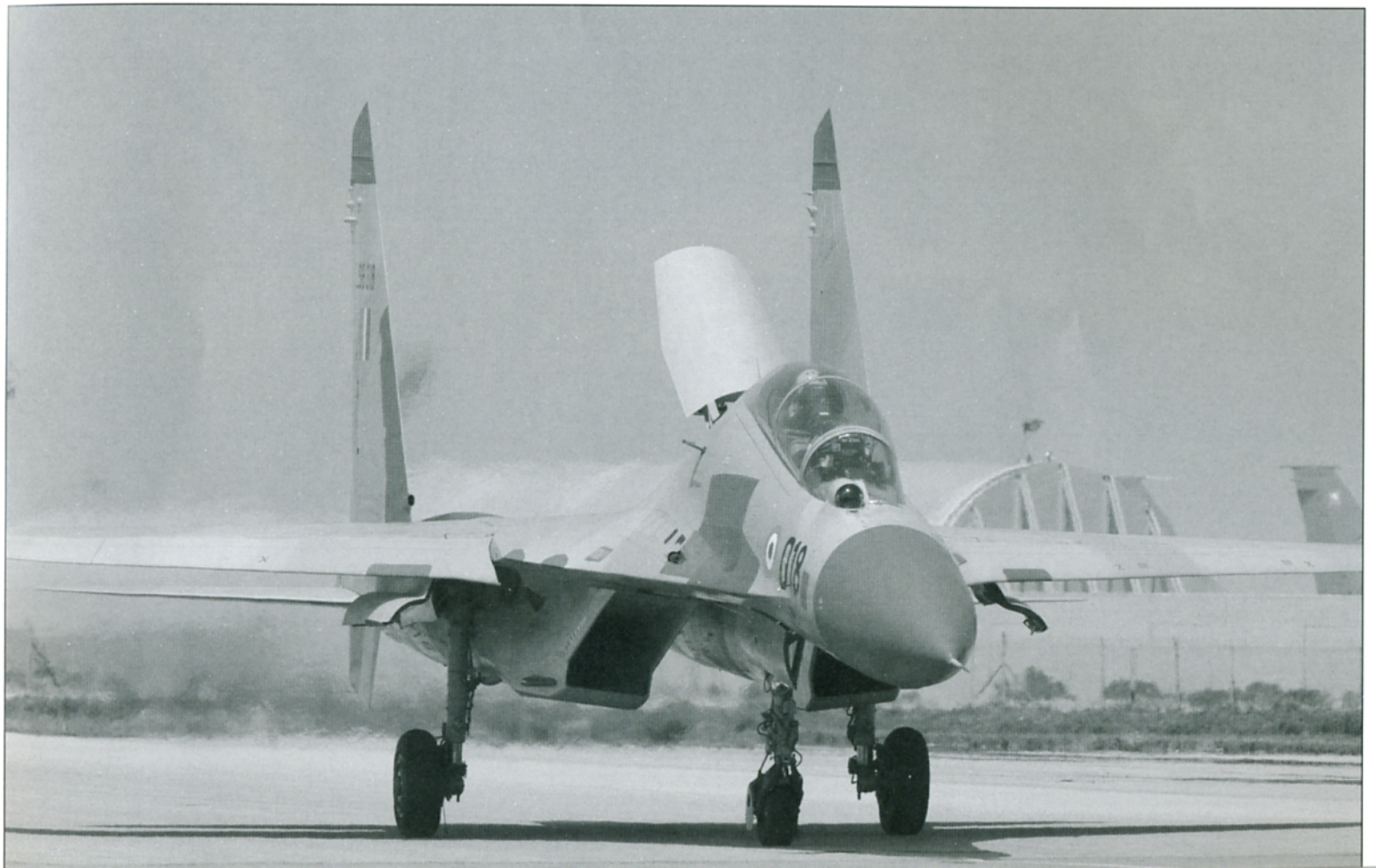
The Su-27 "Red 66" belongs to the 760 IISAP (Instructor Research Composite Aviation Regiment). The use of the Russian flag on the tail fin became more popular after the breakup of the Soviet Union.

The third Su-27UB prototype became the first "true" trainer. The first two prototypes, T-10 UB-1 and T-10 UB-2, were converted single-seaters. The third prototype of the Su-27UB adopted the conical fairing parachute door from the single-seat Su-27 Flanker-B. In contrast to all other standard-production Su-27UBs, this Su-27UB has no tactical number on the tail fin. (*A.A. Zirnov*)

The Su-27UB "Blue 20" comes to a halt with the two White and Orange drag chutes and the dorsal mounted air brake fully deployed. Su-27UB Flanker-Cs have a larger air brake than Su-27 Flanker-Bs. All Su-27UBs had the tactical number applied above the national marking, while the Su-27 Flanker-B had the tactical number below the national marking on the tail fin. (*A.A. Zirnov*)

The Su-27UB Flanker-C "Blue 18" is part of the Russian Knights aerobatic team. The single White ECM antenna on the wing root extension is not standard for Su-27UBs. Standard Su-27UBs have two ECM antennas on the wing root extension. This Su-27UB has the early Sukhoi OKB logo on the port air intake duct and the Russian Knights logo on the starboard air intake duct. (*A.A. Zirnov*)

The T-10 K-1 "Blue 37" prototype differed from all other subsequent navalized Flankers in that its wings didn't fold. This first prototype crashed on 28 September 1988 with Hero of the Soviet Union Nikolai Sadovnikov at the controls. Sadovnikov successfully ejected, but suffered injuries that prevented him from further flying. (*Sukhoi OKB*)



(*Above*) These Su-30s belong to the Indian Air Force. The Su-30 is a modernized version of the Su-27UB. These Su-30s took part in the exercise "Garuda II," which was held at Istres Air Force Base in France in June 2005. The Indian Su-30s took part in combat exercises with French Air Force Mirage 2000s. (*Erich Riester/ AviaPress.ch*)

(*Left*) This Indian Su-30 has its large dorsal air brake fully deployed. (*Erich Riester/ AviaPress.ch*)

These two Su-30s were the first to be delivered to the Venezuelan Air Force. They were received on 30 November 2006 and became part of Venezuela's 13th Air Group.
(*AMV via Horacio J. Clariá/www.avialatina.com.ar*)

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